ŽIVÉ IT
PROJEKTY

investechskills
Košice 2026

11. ročník

2026

PROGRAM

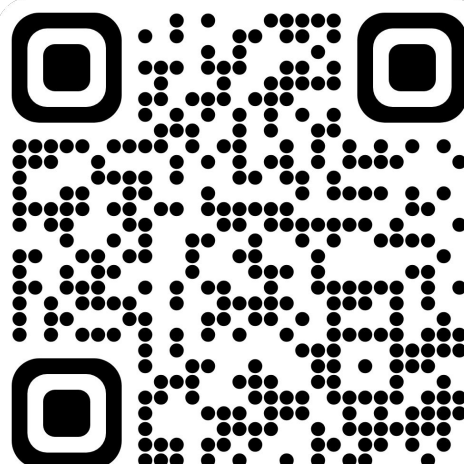|	
8:00 – 12:30	Prezentácie študentských projektov v 3 blokoch
13:00	Vyhlásenie finalistov
13:30 – 14:45	Prezentácie finálových tímových projektov
14:45 – 15:15	Porady porôt
15:15 – 15:30	Vyhodnotenie
15:30 – 16:00	Neformálna retrospektíva

Viac informácií na

www.kpi.fei.tuke.sk/zive-it-projekty

POROTA

Peter Leitner
Siemens Healthineers

Miriama Hučková
Košice IT Valley

Tibor Gujdán
FPT Slovakia

Mária Maceková
IBM Slovensko

Michal Lukáč
Visma Labs

Martin Džbor
Deutsche Telekom IT Solutions Slovakia

Stanislav Rusch
Accenture

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Adam Urban
Košice IT Valley

Peter Papcun
TUKE

Jaroslav Porubän
TUKE

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1

ABB SOLUTIONS SLOVAKIA

BABKIN TIEŇ

Autori : Ján Mišenko, Maroš Petriľák, Erik Rašš, Michal Jankura, Matúš Kuriľak

KPI Mentor : Ing. Matúš Sulír PhD.

ABB SOLUTIONS SLOVAKIA Mentor : RNDr. Maroš Budaj

PROBLÉM

Ako sa postarať o bezpečnosť starnúcich rodičov, ktorí žijú sami, bez toho, aby sme z ich domova spravili väzenie s kamerami? Ako získať pokoj na duši a vedieť, že sú v poriadku? Podstata nášho riešenia nie je v sledovaní, ale v istote. Potrebujeme jednoducho vedieť, že sú v poriadku a ich deň prebieha tak, ako má.
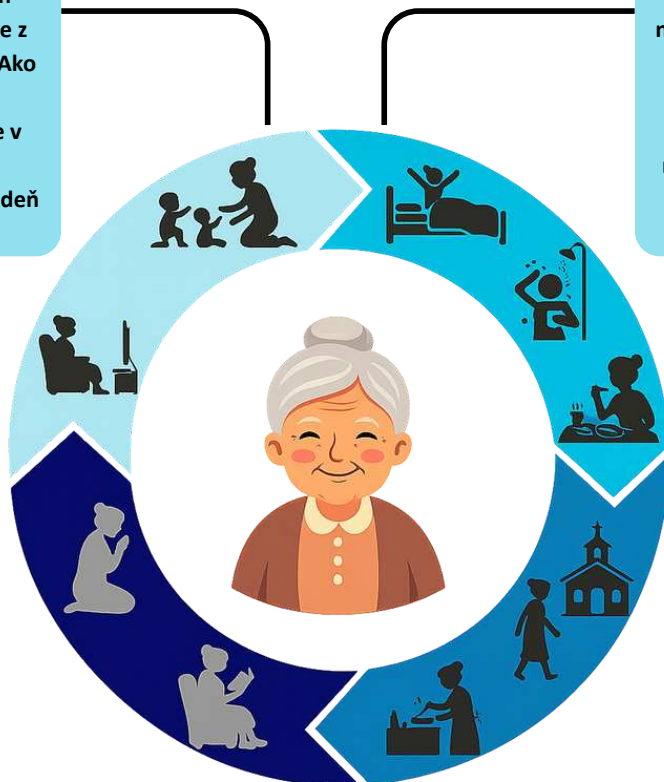
RIEŠENIE

Senzory Shelly posielajú dáta o rutine do našej mobilnej aplikácie. Tu vytvárame Digital Twin – digitálne dvojča ich bežného dňa. Systém inteligentne vyhodnotí aktivitu a synovi/dcére či samospráve odošle daily report. Vďaka technológii vieme, či je všetko v poriadku, bez toho, aby sme narušili súkromie alebo dôstojnosť našich rodičov.

Flutter **Shelly** AI Foundry OpenAI **Azure**

1. **Inštalácia senzorov SHELLY**

2. **Setup aplikácie : pridanie seniora a senzorov**

3. **Zber dát : senzor zachytí aktivitu, odošle dáta na server**

4. **Digital Twin: Server porovnáva aktivitu s DT a biorytmom seniora**

5. **Report: GenerativeAI/LLM vyhodnotí deň a zašle rodine detailný report**

2

accenture

Stargazing telescope control for the Slovak Academy of Sciences

Authors: Daniel Opavský, Martin Pacanovský, Michal Ondrej, Samuel Pastirčák, Bernadeta Gajdošová
Mentors: Stanislav Mihal (Accenture), Ján Adamčák (SAV), Ing. Peter Gnip, PhD. (KPI)

Problem Description

- **Blocking control** – slow position adjustment
- **Fixed steps** – low positioning precision
- **Unclear protocol** – hard debugging and extension
- **Complicated web interface** – implemented directly in C/C++

Goal (Outcome)

- **Simplify** the control system with new architecture and communication protocol
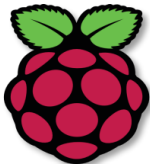- **Enable** precise non-blocking movement based on astronomical coordinates

Solution Features

- **Non-blocking** motor control
- **Simultaneous** movement of both axes
- **Maintained** internal coordinate state
- **Text-based** (simple) communication protocol
- **Web-based** control without external libraries
- **Code simplification** (~700 lines vs. ~2800)

Current Status (Usage)

- Control via a **web interface**
- Commands sent to the **Arduino** over a serial connection
- Implementation is being tested and fine-tuned by **SAV** employee

Architecture

Hardware:
- **Arduino MEGA 2560** – motor control
- **Raspberry Pi Pico WH** – web server
- **Stepper motors** and **motor drivers**

Software:
- **Arduino** – C/C++, 16-bit timers, ISR
- **Raspberry** – MicroPython (HTML/CSS/JavaScript)
- **Communication** – serial interface

Coordinate System

Equatorial coordinates:
- **RA / HA** – right ascension (hour axis)
- **DEC** – declination axis

Movement defined in the format:
- *HH:MM:SS / DDD:MM:SS*
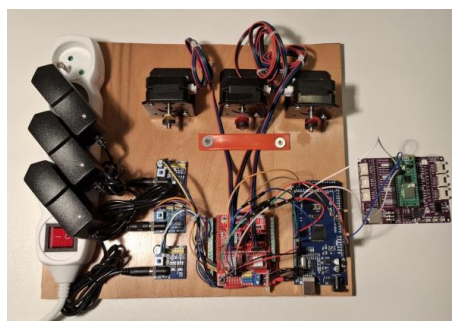
Conclusion

- **Simpler** and more **transparent** architecture
- **Readable** communication protocol
- **Non-blocking** motor control
- **Solid foundation** for further tuning and real-world deployment

3 SRZ App electronic fishing permit

Authors: Vladyslav Dorosh, Arsen Fesiuk,Vladyslav Klymiuk, Danylo Nazarov, Mykhailo Bakhir

University mentor: Peter Gnip

Accenture: Stanislav Mihal, SRZ m.o. Presov: Zbynek Benes

PROBLEM

- Fishing permits are maintained on paper
- Catch records are entered manually and are error-prone
- Data loss complicates end-of-season reporting
- No unified digital system for catch statistics and verification

SOLUTION

Registration and profile management -
Digital fishing license -
Catch recording -
Catch statistics and history -
AI-based fish species classification from photo -

USER

REST API

MOBILE APPLICATION

WEB INTERFACE

ADMINISTRATION
- User and license verification
- Review and validation of catch records
- Data management and statistics overview

CONCLUSIONS

The project is a Proof of Concept (PoC), demonstrating the feasibility of a digital system for issuing fishing permits and automated catch registration. The proposed solution demonstrates the feasibility of replacing paper-based processes with a centralized digital platform. Fully functional implementation is expected in subsequent stages, where the functionality required for practical implementation will be further developed.

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4
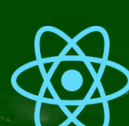
# AI Prompt - web

Oliver Richtarik, Timotej Breznický, Samuel Heteš, Šimon Čurilla, Dávid Slota
AIPrompt – Viktor Mitruk   Ing. Ondrej Kainz PhD.

AI Prompt is a civic association that makes Artificial Intelligence accessible to businesses and individuals through meetings and workshops, helping the community understand and adopt AI technologies.
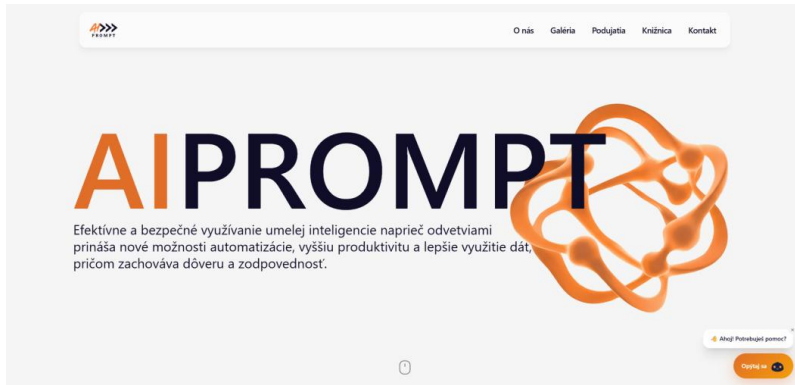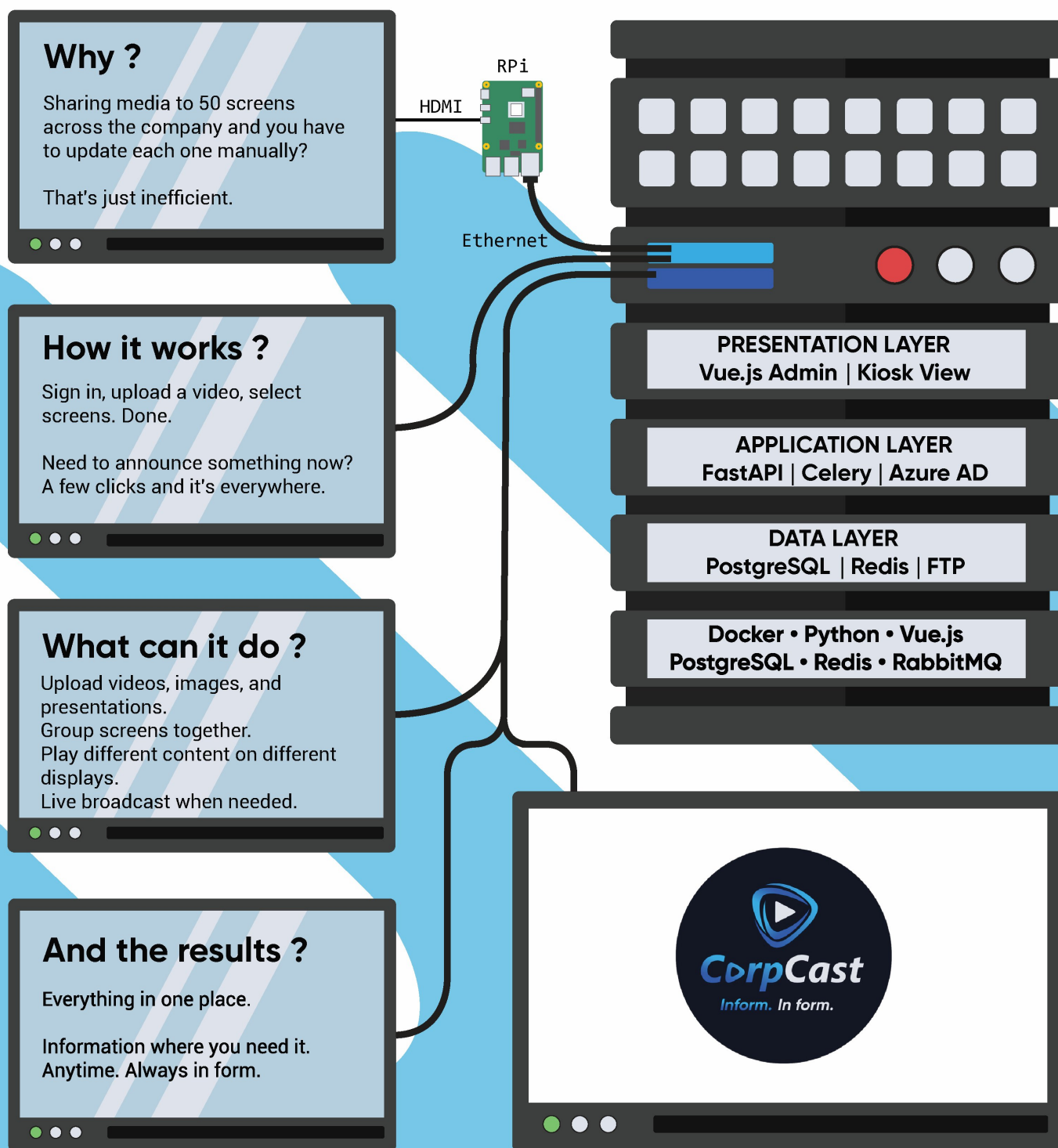

We used Next.js frontend with TailwindCSS and Framer Motion, Supabase backend for database and authentication, Resend for email communications, Google Generative AI chatbot, and Cloudinary for image management.

- Library: Articles, AI prompts, and videos on AI concepts
- Event Management: System for organizing meetings and workshops with automated notifications
- AI Chatbot: Intelligent assistant for instant user support
- Admin Panel: Simple interface for managing content, events, and gallery
- Responsive Design: Optimized for all devices
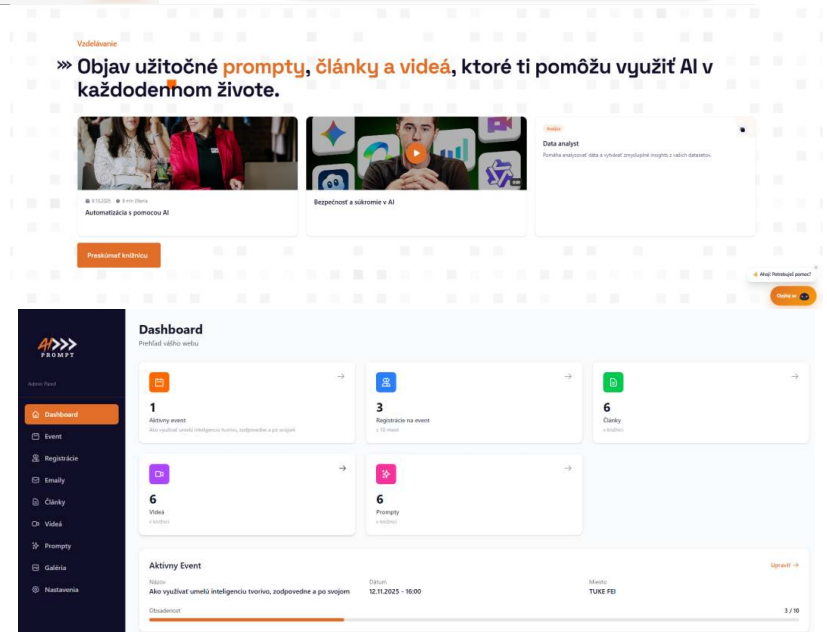
We focused on simple UI/UX for visitors. The admin panel lets administrators easily manage current events, update the gallery, and publish articles, prompts, and videos to keep content fresh and relevant.

Core requirements met. The platform is functional and serves the AI Prompt association. Ongoing work focuses on fine-tuning details and optimizing performance to ensure everything works as intended.

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Váradi Sebastian, Vartovník Damián, Strela Gabriel, Slodičák Šimon
AT&T GNS Slovakia   Ondrej Licak   William Steingartner

AT&T

Why ?

Sharing media to 50 screens across the company and you have to update each one manually?

That's just inefficient.

RPi

HDMI

Ethernet

How it works ?

Sign in, upload a video, select screens. Done.

Need to announce something now? A few clicks and it's everywhere.

What can it do ?

Upload videos, images, and presentations.
Group screens together.
Play different content on different displays.
Live broadcast when needed.

PRESENTATION LAYER
Vue.js Admin | Kiosk View

APPLICATION LAYER
FastAPI | Celery | Azure AD

DATA LAYER
PostgreSQL | Redis | FTP

Docker • Python • Vue.js
PostgreSQL • Redis • RabbitMQ

And the results ?

Everything in one place.

Information where you need it.
Anytime. Always in form.

CorpCast
Inform. In form.

kpi

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FEI TUKE

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6

Building App

Students: Ihor Havryliv, Oleksii Haiduk, Artem Davydenko, Maksym Streltsov, Taras Havryliuk

Company: AT&T GNS Slovakia
Mentors: Ondrej Licak, Tomas Vala, Martin Sujan

University mentor: Ing. William Steingartner PhD.

Problem description: The project involves developing a modular mobile application for Android and iOS that enables the management of multiple buildings and companies within a single system, including the ability to add users to individual buildings.

Solution architecture:

Backend:

-Framework: NestJS (Node.js)
-Database: PostgreSQL with Prisma
-Notifications: Expo Push Notifications
-Email: SMTP
-Email verification: Hunter.io
-Geocoding: Google Geocoding

Frontend:

-Framework: React Native with Expo
-Platforms: iOS and Android

Solution features:

The application manages users and buildings. It allows adding users individually or in bulk (CSV/JSON), automatically sends temporary passwords, and verifies emails via Hunter.io.

It supports the roles SUPER_USER, BUILDING_MANAGER, and OCCUPANT with different permission levels, as well as assigning users to specific buildings.

For buildings, full CRUD is available, along with filtering by location (country, region, city, state) and building image management.

Communication is handled through push notifications (Expo), including scheduling and notification history.

Status: Currently in company testing.

Evaluation:

We successfully completed the project and tested it within the team. The application behaves stably in typical scenarios and achieves the defined goals. However, it lacks modularity in the form of configurable, switchable modules/integrations set by an administrator for a specific building.

7
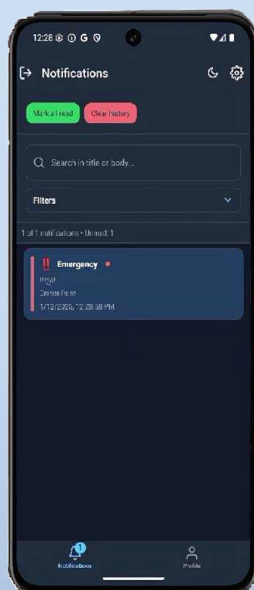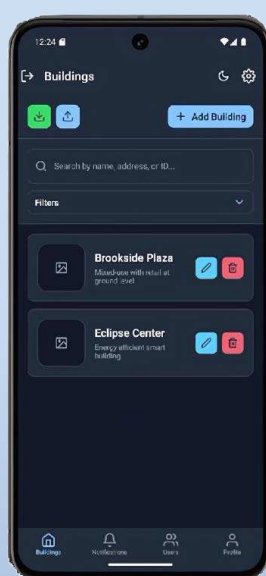
bart

CityConnect

Patrik Kunec, Daniel Adamkovič, Viliam Goldmann, Denis Leonov, Valentyn Lieshchuk
Company: Bart.sk, Adam Hnat
University mentor: Slavomír Šimoňák

Problem description

Cities often lack an effective way to collect structured feedback from residents and understand local needs. CityConnect enables citizens to submit issues on an interactive map while AI categorizes inputs, prioritizes key issues, analyzes sentiment.
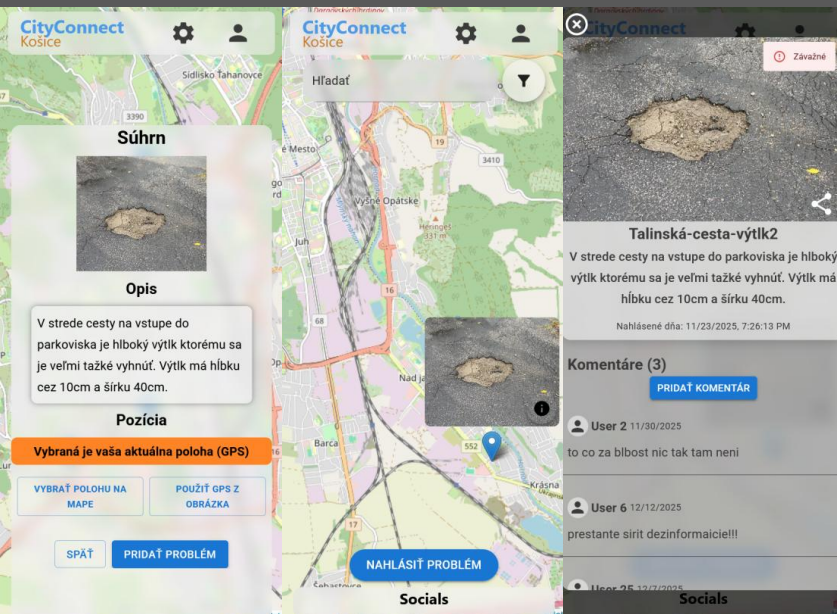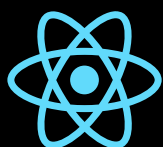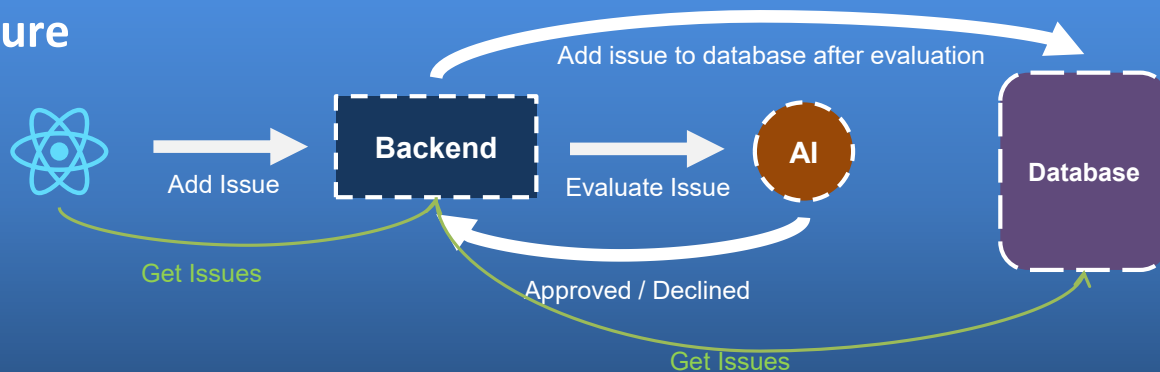

Features

- Interactive map
- Responsive design
- Issue image & description
- Issue severity
- Issues categorized by AI
- Issue URL
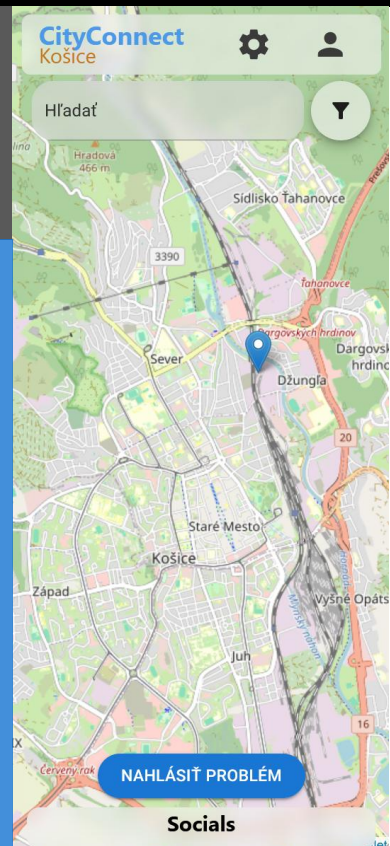
Current State

- Users can see current issues on interactive map.
- Logged-in users can add issues, providing image and a description of a problem in the city.
- Logged-in users can comment on issues.
- Users can share issues with URL.

Architecture

Add issue to database after evaluation

Backend — Add Issue — AI — Evaluate Issue

Get Issues

Approved / Declined

Get Issues

Database

8

bart

MMM Stats

Sakáč, Imrich, Šmilňák, Špaková, Filip
Bart.sk – Pavol Tkáč, Marek Šafárik

Ing. Martin Štancel, PhD.

Problem Description

The Košice Peace Marathon contains a wealth of interesting data that can inspire runners, reveal the event's history, and serve as an information source for media and the public. The goal of the MMM Stats project is to make this data accessible to everyone, not just experts, but also fans and casual visitors, transforming ordinary tables into an interactive and user-friendly system for the general public.

Solution Architecture

Web Interface : Vue.js + Vuetify + ApexCharts

Backend : Django REST Framework

Database : PostgreSQL

Key Features

* Runner search and filtering
* Interactive performance charts
* Complete race history per runner
* Upcoming marathons discovery with navigation to marathon page
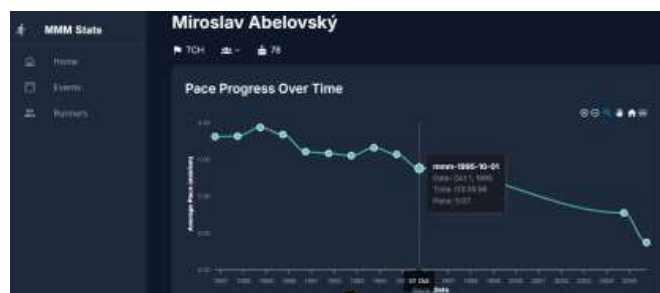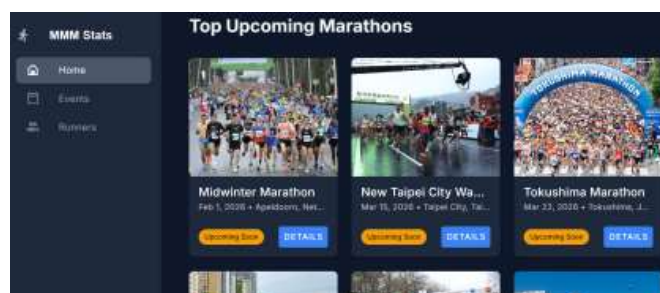
Usage & Deployment

Functional prototype with real data from 100 years of MMM races and 20 000 runners

Deployment:
Local development (Django + Vue.js)
Docker image ready for production

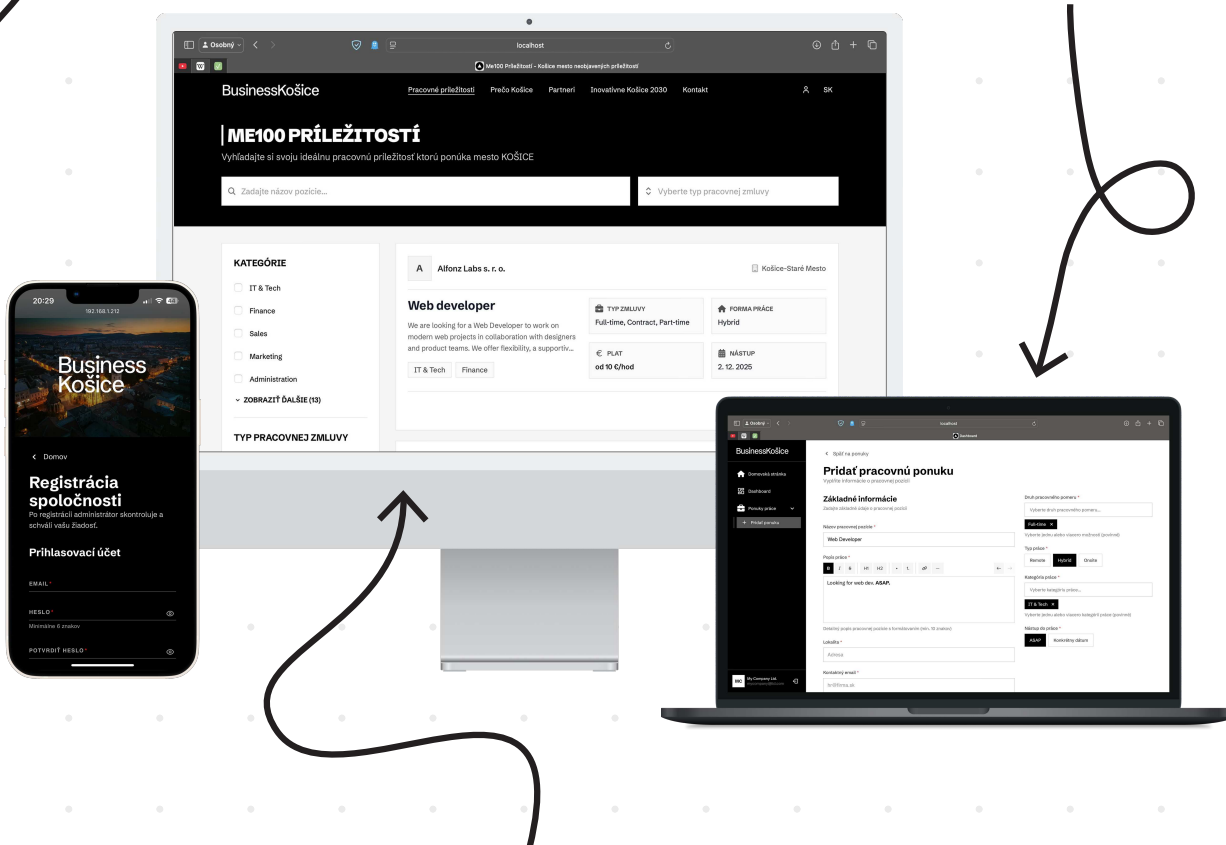## Screenshots

Evaluation & Results

* Successful integration of historical data
* Responsive user interface
* Functional performance visualization

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Tomáš Bartoš, Simon Kentoš, Andrea Krankotová, Filip Vavrek, Tomáš Vida
University mentor: Miroslav Biňas
Product owner: Ivana Nittmannová (BUSINESS KOŠICE n.o.)

Come back for more than a job.

"A private platform bringing global talent home with exclusive, high-impact career opportunities you won't find anywhere else."

1. Register your company
or sign in as a user

2. Post a job
as a company

3. Filter jobs that suit you!

NEXT.JS   **tailwindcss**   **supabase**   **▲Vercel**

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10 AI-powered talent to opportunity mapper

Arsenii Milenchuk, Denys Bondarchuk, Ruslan Pylypiv, Maksym Kuznietsov, Mykyta Kondratiuk

Telekom mentor: Martin Dzbor   **University mentor:** prof. Ing. Iveta Zolotova CSc.

Problem Statement
Large companies have problems with the rapid implementation of new technologies due to a lack of current competencies and delays in team building.

Solution Overview
We have created an AI system that helps companies implement new technologies faster. Simply specify the target technology – the system will automatically determine the necessary skills and select candidates who are already prepared to work with this technology or can learn it quickly.
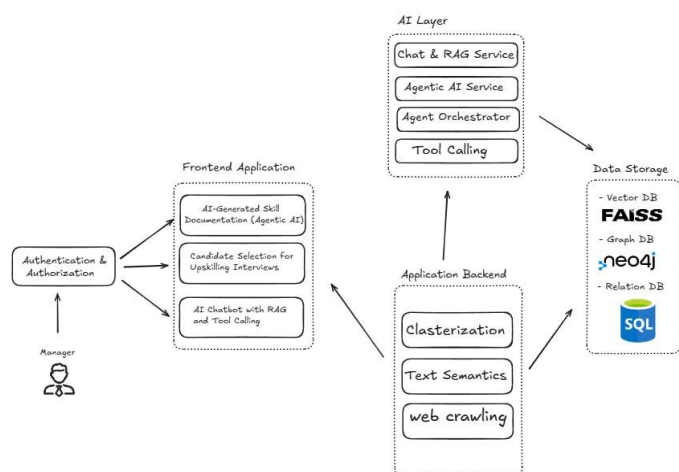

Key Features
- Reduces the time needed to select specialists
- Reduces the workload of managers
- Reduces the risk of selecting the wrong employees
- Accelerates companies' entry into new technological areas

User Interaction
The system provides an interactive interface in which the user communicates with the platform via chat and a visual environment (graphs, diagrams, maps).
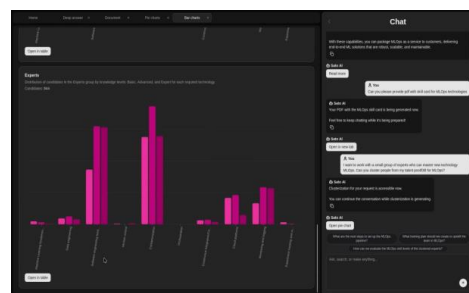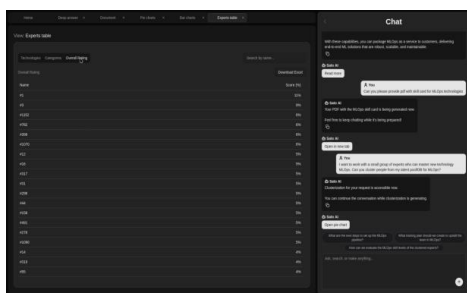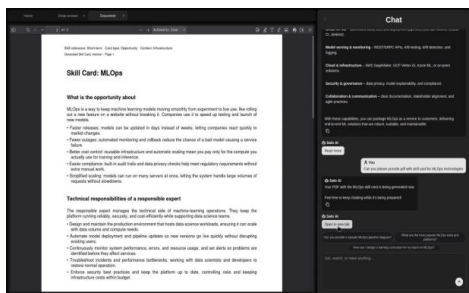
In addition to basic functions, you can generate a technology map, set up filters, and work with analysis results.

System Evaluation
The system was tested on a dataset consisting of **100,000 records** (3,500 employee profiles). On average, the system generated a list of the **15 most suitable candidates** for a given technology in **5 minutes**.

KKUI Katedra kybernetiky a umelej inteligencie

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T

AI optimizer for processes and IT services

Marek Meščan, Jakub Šebest, Jakub Baranský, Oliver Maťaš, Maroš Pipčak

DTIT, Róbert Kostka, Martin Eperješi   Ing. Marcel Vološin, PhD.

CHALLENGE

Deutsche Telekom IT Solutions Slovakia works with a large amount of process and operational data, which is not fully utilized to improve the efficiency of teams and services.

↓ ~ 84k potential hours saved

↑ ~1,35M potencial cost savings

AI models   Data Analytics · Visualisations

Automation opportunities

SOLUTION

The project uses AI models to process and analyze IT service data. The resulting insights are visualized in the form of graphs to support better decision-making and optimization.

Resource optimalization

Savings estimation

EVALUATION

The processed data and created analyses help identify automation potential, estimate workload and possible savings, and provide a basis for more efficient resource allocation.

Phyton   Jupyter   Prophet   NLTK   SciPy

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12

KošiceConnect

Benjamín Blaha, Branislav Blicha, Tobiáš Sentál, Mikuláš Kašinský, Pavol Almáši

FPT Slovakia (Ing. Anna Vojtková, PhD.; Ing. Maroš Lukáč)   doc. Ing. Štefan Korečko, PhD.

Problem Description

City services, nonprofits, and citizens lack a shared digital space for communication and coordination.

City Administration
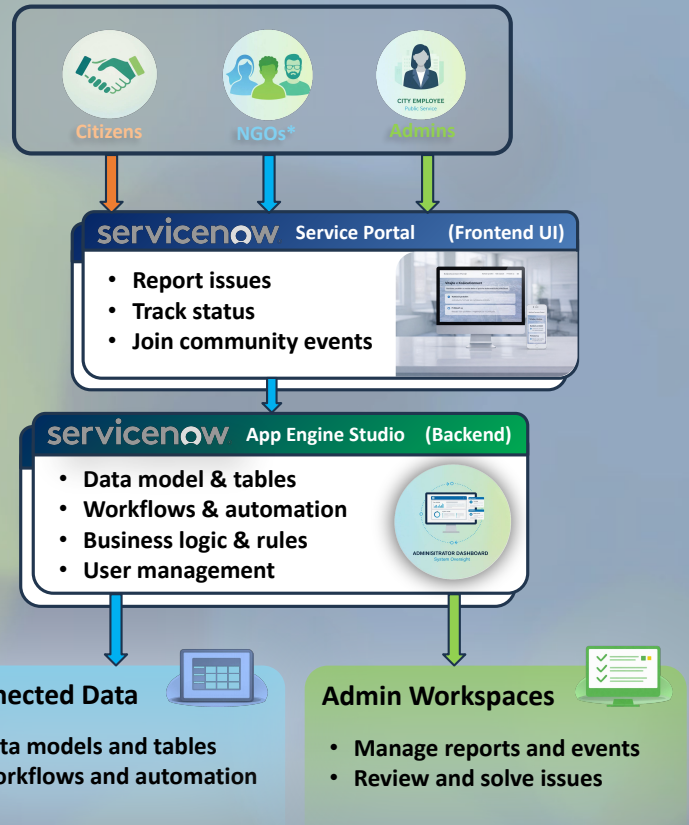
Issue Reporting

Activity & Volunteering

Citizens

KošiceConnect
Unified Digital Platform

Dashboards & Analytics

Automated Workflows

Status Updates

Nonprofits

Mobile Access

Solution Architecture

Citizens   NGOs*   Admins
                     CITY EMPLOYEE
                     Public Service

servicenow Service Portal (Frontend UI)

- Report issues
- Track status
- Join community events

servicenow App Engine Studio (Backend)

- Data model & tables
- Workflows & automation
- Business logic & rules
- User management

ADMINISTRATOR DASHBOARD
System Oversight

Connected Data

- Data models and tables
- Workflows and automation

Admin Workspaces

- Manage reports and events
- Review and solve issues

Evaluation

The KošiceConnect platform integrates citizens, the city, and non-profit organizations into a single digital solution.

The prototype demonstrates efficient issue reporting, transparent process tracking, and improved community engagement through a unified interface.
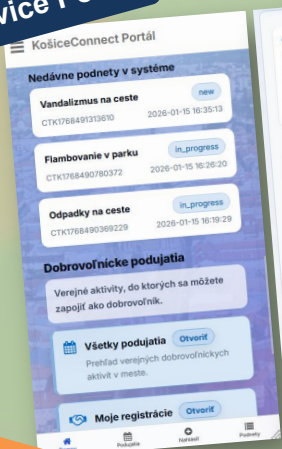
Current State / Usage

The solution is implemented as a functional prototype and is currently used in a test environment.
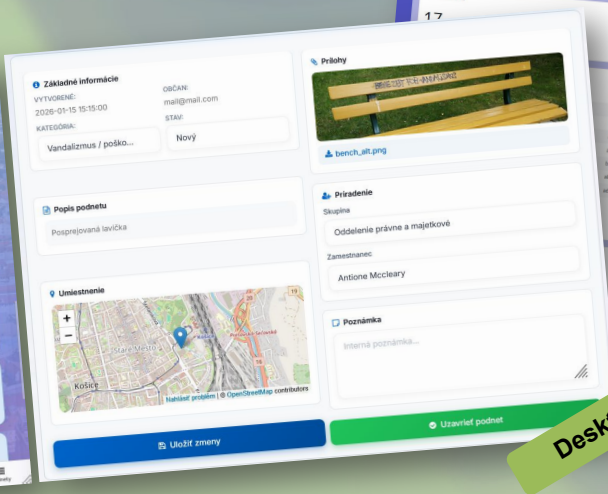
Service Portal

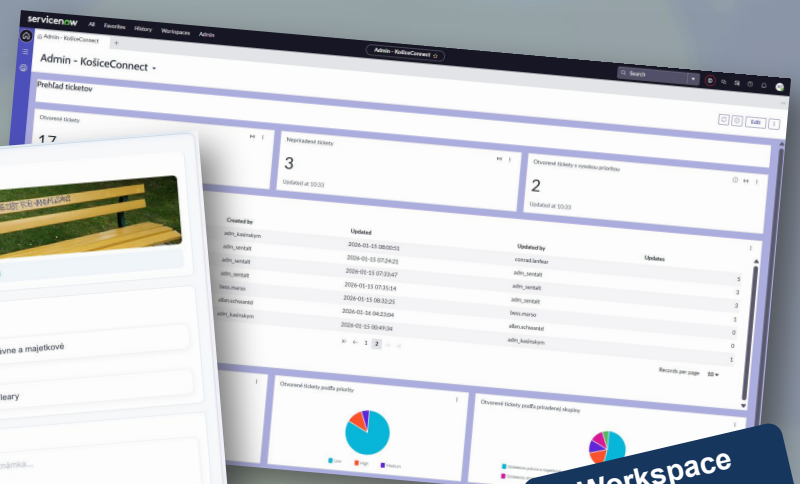**Mobile App**

Desktop

Workspace Backend

*Non-Governmental Organization

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13
EPIC

EnerGenius
David Vincler, Kristián Ragančík, Bibiana Balcová, Karin Krempaská, Jaroslav Kupec
Company mentor: Ing. Erik Kajáti, PhD. , Ing. Martin Miškuf , PhD., Ing. Jozef Mocnej PhD.
University mentor: prof. Ing. Iveta Zolotová, CSc.

Market data is complex (many sources), fast-changing, and time-series based. Manual reporting is slow and inconsistent. Our automated reporting system uses RAG, indicators, and backtesting to generate standardized reports.

EnerGenius

Key Features

✓ Hybrid retrieval: BM25 + vectors
✓ Backtesting: custom functions
✓ Indicators: built-in signals
✓ Two-agent reporting: content → HTML
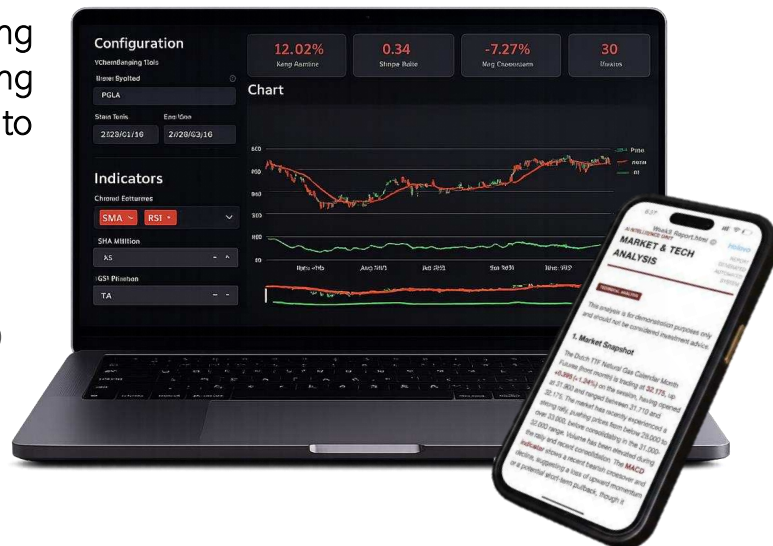
Solution Architecture

UI: Streamlit
Document processing: Docling
Embeddings: Nomic Embed
Vector DB: Weaviate
Hybrid search: BM25 + Vector
Orchestration: LangChain
LLMs: Gemini (main) + local GPT-20B (optional)

Streamlit

Gemini

BM25.com

How it's used?

1 select dataset/market
2 run indicators + backtesting
3 query knowledge through RAG search
4 generate a final report (text + HTML)

*The system demonstrates an automated reporting workflow enhanced with **RAG** (hybrid retrieval in Weaviate) **and LLM-based agents**. It improves the speed and consistency of analysis while producing shareable HTML outputs.*

14

Technická univerzita v Košiciach
Ústav výpočtovej techniky

SmartMeter TUKE

Tymochko Nazarii, Ryzhak Eduard, Kryvolapov Oleksandr,
Petsa Oleksandr, Shevchuk Dariia
Mentor ÚVT TUKE: Ing. Michal Ennert, PhD.
Mentor KKUI: prof. Ing. Iveta Zolotová CSc.

PROBLEM DESCRIPTION

Traditional energy meter tracking is largely manual, fragmented, and highly error-prone. Organizations lack real-time visibility, centralized data, and advanced analytics needed to effectively monitor and reduce energy consumption. In addition, the process relies on extensive paperwork and manual record-keeping, which increases administrative overhead, slows decision-making, and further raises the risk of inconsistencies and human error.

SOLUTION

SmartMeter

Mobile app captures meter data instantly

AI-powered engine, trained on HPC PERUN, extracts, validates, and enriches data

Centralized backend securely stores all meter records

Full device lifecycle administration via web application

Cumulative business intelligence data analysis in Power BI

Excel reports are generated automatically

SUITABLE FOR

enterprises   laboratories   households

React JS   Flutter   python   Java   spring boot   Microsoft SQL Server   Power BI

KKUI
Katedra kybernetiky
a umelej inteligencie

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15

Checking available parking spaces in the city

Authors: Mykyta Ölym, Iryna Popovych, Roman Trehub, Volodymyr Antypenko, Milan Grus
KPI mentor: Ing. Marcel Vološin, PhD.
Mentors from the "FPT Slovakia": Richard Mizak, Daniel Vajda

ParkMe

Description of the problem

Drivers in city centers often waste time looking for available parking spaces. Repeatedly driving around streets increases traffic congestion, emissions, and stress. At the same time, local governments need accurate data on parking capacity utilization to plan and optimize parking policies.
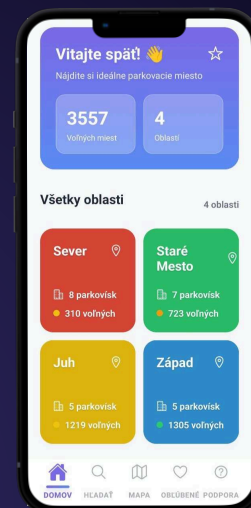
Features of the solution

- Map of available/occupied places + navigation
- Filtering: short-term, long-term, closed
- Real-time updates
- Parking lot/zone details: capacity, free spots, opening hours
- Zones statistics: utilization over time, peaks, trends
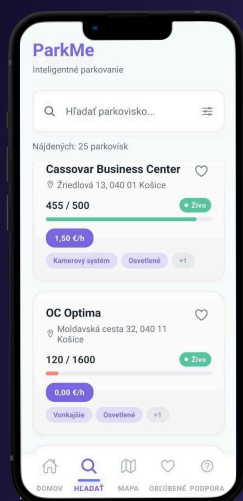
Evaluation and status of the solution

The implementation covers all key project requirements, displaying parking availability on a map, filtering by parking type, and navigating to the selected parking lot.

Solution architecture

We obtain occupancy data using YOLO. The backend in FastAPI processes it, stores it in SQLite, and provides it to the mobile application in React Native via REST API. A web admin panel with statistics is also available.

16
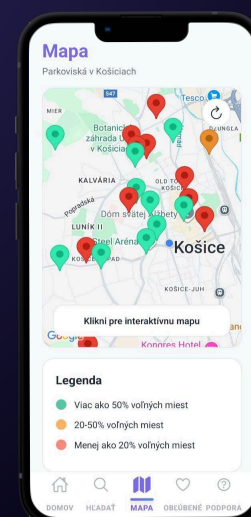
GAMES FARM

Unseen Steps

Students:
Matej Bendík, Lukáš Čeč, Oliver Fecko, Miroslav Hanisko, Jakub Janok

Company and mentors:
Games Farm, s.r.o. Juraj Baksy, Matej Hudák

University mentor:
doc. Ing. Emília Pietriková PhD.

Problem description

A 2D platformer adventure set in a glitchy world of ninjas. The environment is revealed by the cursor. The goal is to fight your way to the portal and return home.

Solution features

Revealing the surroundings with the cursor, a combat combo system, usable items, movement abilities, merchants, and boss fights.

Solution evaluation

The reveal-by-cursor mechanic strengthens exploration and tension, while combat and movement systems keep the gameplay dynamic.

Solution architecture

ink

Project status

The project is in a functional demo state, with the possibility of future development of the story line.

kpi

LIVE IT PROJECTS

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Red Riding Glitch

Students:
Bc. Adrián Lengyel, Bc. Laura Libjaková, Bc. Ibolya Sallaiová, Bc. Tomáš Chrapovič, Artur Paulouski

Company: Games Farm
Matej Hudák, Juraj Baksy

University mentor:
doc. Ing. Emília Pietriková, PhD.

GAMES FARM

RED RIDING HOOD

Game
Step into a twisted fairy tale as Little Red Riding Hood, fixing eerie anomalies and unusual encounters

Problem
Lack of locally-developed titles within the Slovak gaming industry.

Our solution
We combine the universally known Red Riding Hood story with trending "anomaly-spotting" gameplay.

But as she stepped into the trees, the familiar woods felt... different. She skipped forward, unaware of what awaits.

Use WASD to Move   Use Mouse to look around

Press F to fix glitch

This seems... pretty odd

Game Jam Finalist

2025 GAME JAM
UNSEEN STEPS
RED RIDING GLITCH
KAWAII SLAYER
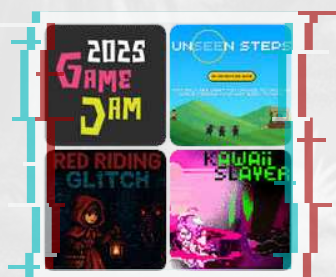
Tools & Tech

Game Days Participant 2025

Game Days

kpi

LIVE IT PROJECTS

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Košice 2026

18

HAMSTA.AI

AI Phone Bot:
1 Call, 0 Hassle, 100% Care

Bc. Hordiichuk Volodymyr, Bc. Kalashnyk Vladyslav, Bc. Bodnar Oleksandr, Bc. Golovchyk Mykyta, Bc. Sholtys Dmytro

Mentor: prof. Ing. Iveta Zolotova, CSc.   Product owner: Bc. Peter Dolina

Problem Description:

In the United States, many service-based businesses particularly in the healthcare sector still rely on traditional phone communication. A large number of patient calls go unanswered or end up in voicemail without follow-up, leading to missed appointments, lost revenue, and poor patient experience. Front desk and support staff are often overloaded with repetitive, low-value tasks instead of focusing on meaningful patient interactions.

Solution Architecture:

AI Phone Bot System Architecture

AI Phone Bot System Architecture diagram: Caller → Voice Interaction → AI Phone Bot (Speech Recognition & Synthesis; ElevenLabs.AI | Gemini AI) → Calls & SMS → Telephony Services (twilio, Vonage). AI Phone Bot → AWS EC2 Server → API Requests → FastAPI Backend (python), MySQL Database, EHR System (Practice Management).
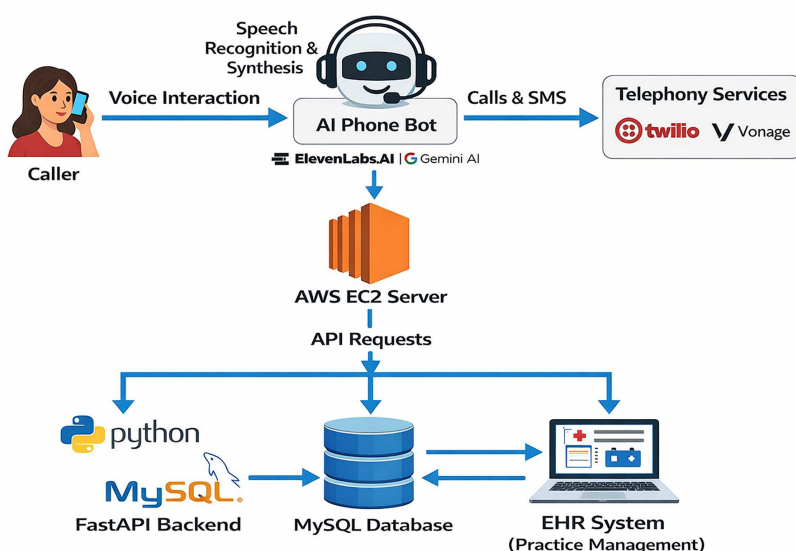
Solution Features:

- AI phone bot for automated call handling
- Appointment scheduling, rescheduling, and cancellation
- Answers questions about availability and order or service status
- Multilingual support (English, Spanish, French, Czech, Slovak, Ukrainian)
- SMS confirmations and notifications

Solution Evaluation:

- Potential elimination of voicemail
- Estimated labor cost savings of up to 20%
- Reduction of staff workload by over 50%
- Improved customer experience and increased conversion rates

Current Status

The solution has been implemented as a demo platform, and two U.S.-based companies have already expressed interest.

ElevenLabs · aws · python · MySQL · Gemini · twilio

19 ORDER BOARD

AN APPLICATION DESIGNED TO IMPROVE STAFF EFFICIENCY IN AN ENTERTAINMENT VENUE.

Students: Juraj Baňas, Miriam Mihelyová, Linda Sobotková, Martin Zeťák, Patrícia Zeťáková

CherryPeak Mentors: Filip Kušnír, Denisa Slivovičová, Dominik Tóth, Erik Hric, Matúš Mihely, Zuzana Papalová

University Mentor: Michaela Bačíková

BELLY BUTTON

ORDER SYSTEM

LOG IN

- Simple and intuitive login
- Ability to change the password in the settings

COMPLETE DAILY TASK LIST

- Just click and save the changes
- You can also return to the previous day
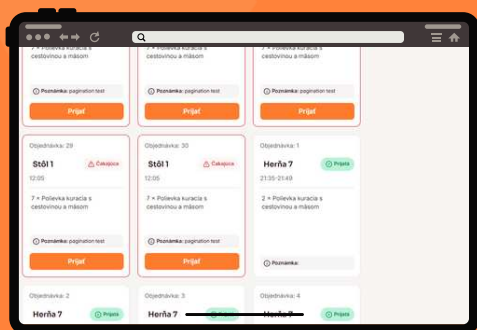
MANAGE ORDERS

- View the list of orders
- Accept orders
- See which orders have already been accepted
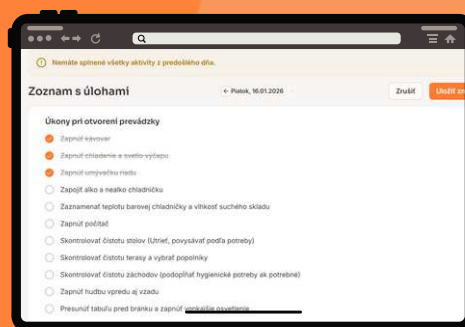
REARRANGE TABLES

- Tables are dynamic and use drag-and-drop functionality
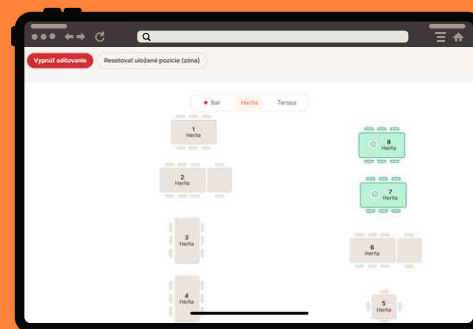
MANAGE RESERVATIONS

- Accept and reject reservations
- View confirmed reservations by table
- Navigate through time
- Search efficiently

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20 IBM
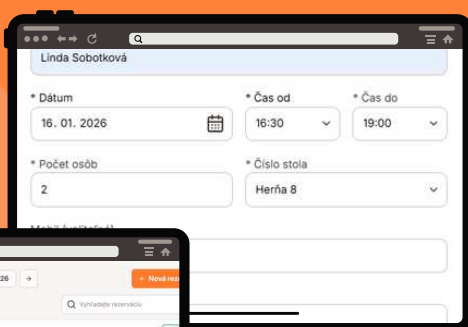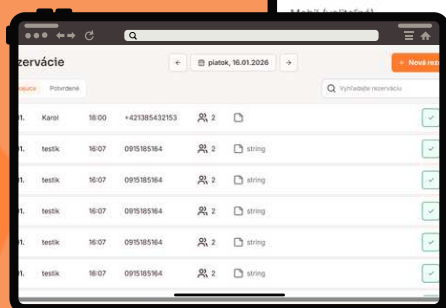
Intelligent Light

Students: Richard Sokol, Erik Macháček, Dominik Forgáč, René Šoltés, Saron Tebebe

IBM: Ing. Marián Ferenc, Ing. Jakub Kipikaša **University Mentor:** Ing. Ján Perháč PhD.

Problem Description
• public light is switched on continously, which leads to unnecessary energy consumption
• Traditional motion sensors have limited accuracy
• There is a lack of intelligent, adaptive solutions
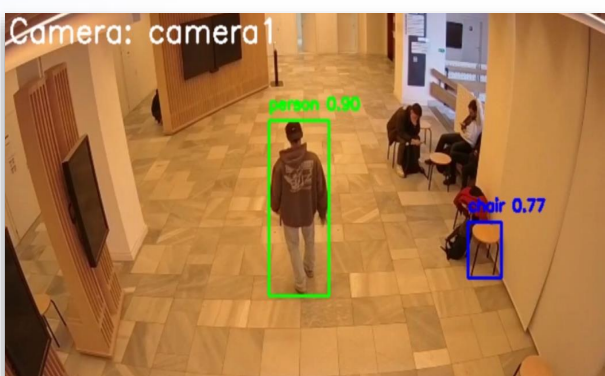
Solution
• Intelligent application based on artificial intelligence
• Real-time person detection using **YOLOv8 and OpenCV**
• When a person is detected, the camera activates the light and automatically switches it off after a short delay once the person leaves

Evaluation of the Solution
• The application achieves energy **savings of up to ~50%** even during high-traffic hours
• More accurate detection compared to traditional motion sensors
• The solution is scalable and modular, suitable for smart cities, corridors, parking areas, and large facilities
• Contributes to reduced energy consumption and supports sustainability

Architecture

MACHINE LEARNING → BACKEND → FRONTEND

21
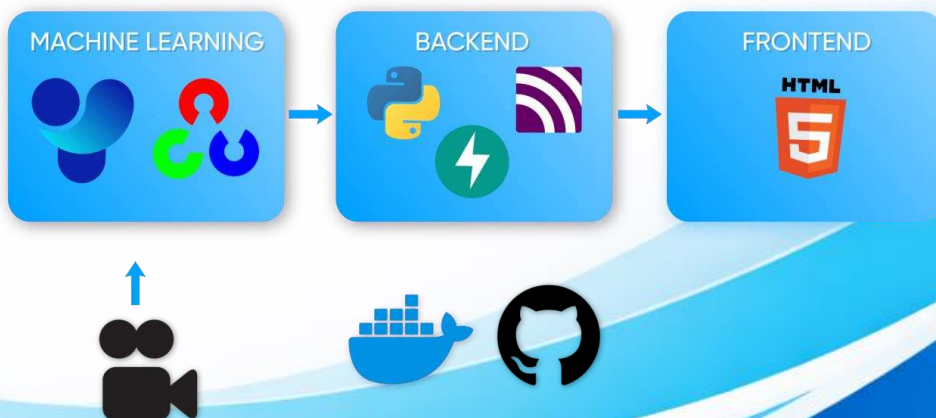
AquaPhage

Students: Dmytro Ivanov, Dmytro Maistruk, Daniil Zhylenko, Serhii Lavreniuk, Vladyslav Futrak
Company name: IBM Slovakia
Company mentors: Miroslav Kurka, Daniel Čobej, Branislav Lipovský
University mentor: Ing. Ján Perháč PhD.

Problem Description

The challenge lies in identifying harmful bacteria in water and developing innovative solutions to eliminate them through machine learning and bacteriophages.

AquaPhage
Water Quality Intelligence

Monitor water quality in real-time with AI-powered analytics. Ensure safer environments, and prevent contamination before it becomes a problem.

Solution features

- Real-time water quality monitoring

- Smart Automatic Analysis

- Intuitive Dashboard & Reports

Water & Sensors → Machine Learning → Pathogen & Phage Database → Frontend

Data Submission → Analysis & Prediction → Final Report → Displaying the Report
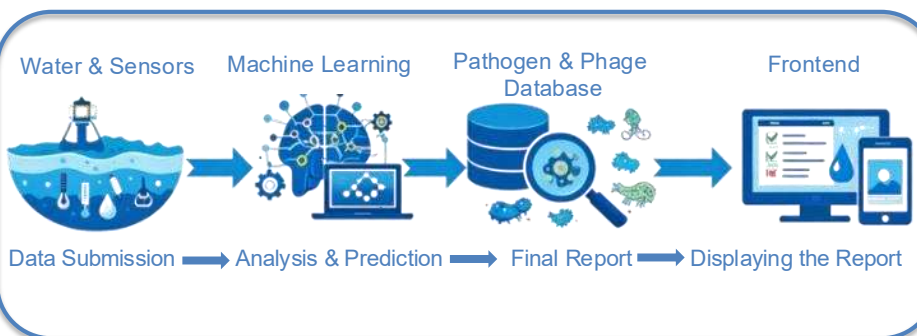
Fig.1: Diagram of the Water Quality Prediction Workflow

Visible Metrics (5/6) — Temperature, SPC, NTU, NO3, pH, NO2 — All None

From 2023-04-21T01:33 To 15.01.2026 00:33 Density

Quality of water
Water metrics

Report 31.05.2023 | Report 31.07.2023 | Report 11.08.2023 | Report 09.09.2023 | Report 20.12.2023 | Report 11.01.2024 | Report 07.02.2024 | Report 28.02.2024

25/04/2023, 12:00 | 15/07/2023, 12:26 | 04/10/2023, 12:53 | 04/03/2024, 12:00

SELECTED SAMPLE:
06.09.2023 12:00

TEMPERATURE
14.78 °C
Normal: 0–25 °C

SPC
268.17 µS/cm
Normal: 50–500 µS/cm

NTU ⚠ high
34.50 NTRU
Normal: 0–5 NTU

NO3
0.04 mg/L as N
Normal: 0–10 mg/L

PH
7.76 std units
Normal: 6.5–8.5 pH

NO2
0.03
Normal: 0–1 mg/L

Predict

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22

IBM

Smart Parking

Authors: Yulian Symkanynets , Tomáš Smolko , Daniel Štilec , Matej Džamba

IBM mentor: Miroslav Merreider | Kpi mentor: doc. Ing. Csaba Szabó PhD.

Problem

- Difficulties in finding a free parking space
- Lack of information about parking prices and opening hours
- It is usually impossible to monitor parking occupancy in real time
- There is no unified tool that would handle payment, navigation, and details in one place
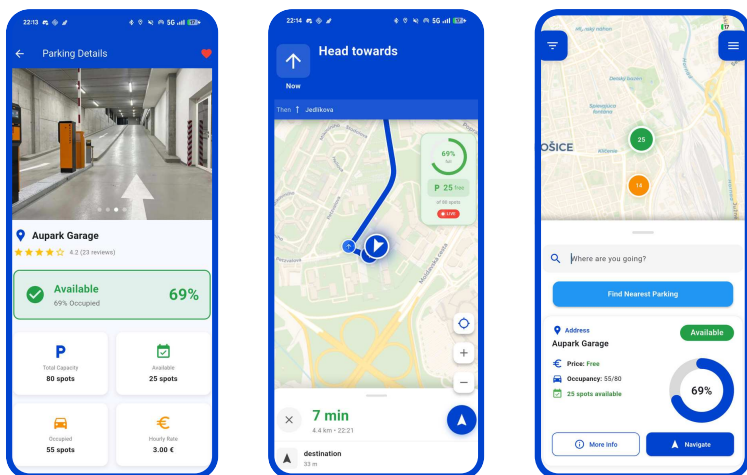
Solution

🚗 Efficient information about nearby parking lots

📍 Navigation implemented directly in the application

📷 Option to livestream a specific parking lot

💳 Payment immediately after finishing parking

Evaluation

- Functional prototype of a mobile application with many screens and custom-built navigation
- Backend integration in the form of loading a list of parking lots, occupancy status, and records
- Clear, driver-oriented UI – reduced search time = lower traffic congestion

Mobile application	Backend	Database

23

IBM

CityEventScout
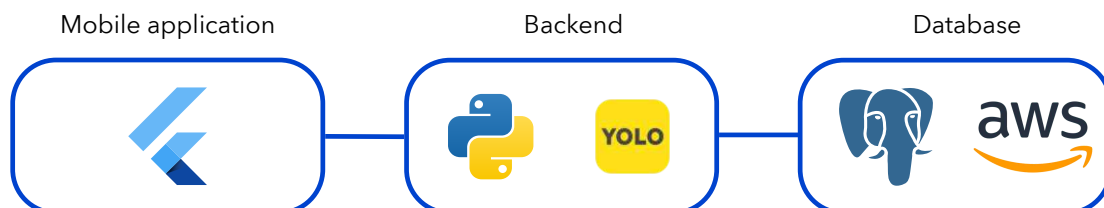
Students: Kristián Kandra, Kamil Škurla, Matej Maňkoš, Štefan Jaklovský, Margaréta Renčková
Company mentors: Adam Antal (IBM), Peter Butkovič (IBM)
University mentor: Sergej Chodarev (KPI)

Problem Description

Information about local events is scattered across multiple platforms such as social media and websites. Users often miss events of interest due to the lack of a centralized, automated solution for discovering and monitoring local activities. Manual searching is time-consuming and inefficient, most systems still require manual event input instead of automated scraping.

Architecture
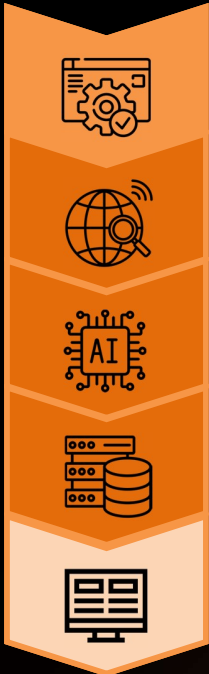
Admin Layer
Admin Web UI for managing event sources, scraping schedules, and newsletter configuration.

Data Collection Layer
AWS-based scraping services automatically collect events from external platforms (e.g. Facebook, tootoot.fm).

AI Processing Layer
LLM-powered processing handles content cleaning, relevance evaluation, and structuring of event details.

Storage Layer
A centralized database stores processed events and ensures data consistency, scalability, and availability.

Distribution Layer
Public Web UI for browsing city events and automated email newsletters for event distribution.
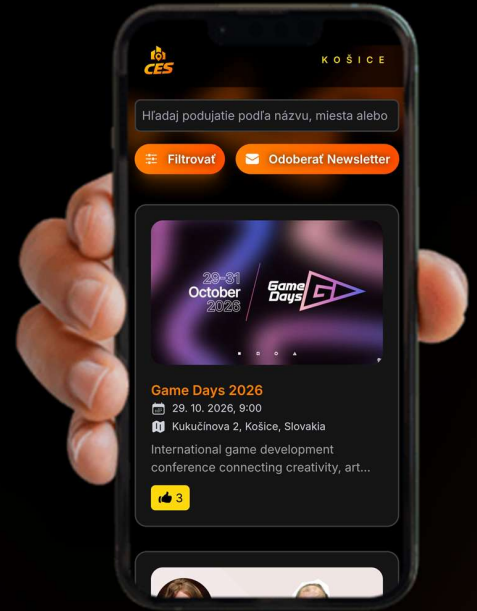
Solution Evaluation

- **Before:** Local events were scattered across platforms, requiring manual browsing and causing missed opportunities.

- **After:** CityEventScout provides a centralized source of local events and continuously discovers new events without manual intervention.

- **Quality improvement:** Event information is standardized and cleaned, improving readability and usability for end users.

- **Operational improvement:** Administration is reduced to configuring sources and schedules, instead of manually maintaining event content.

- **User value:** Users can discover events faster and receive regular updates, improving engagement with local activities.

- **Readiness:** The solution is deployment-ready and designed for future expansion by integrating additional event-source platforms.

Tech Stack

Admin Dashboard

Video

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24
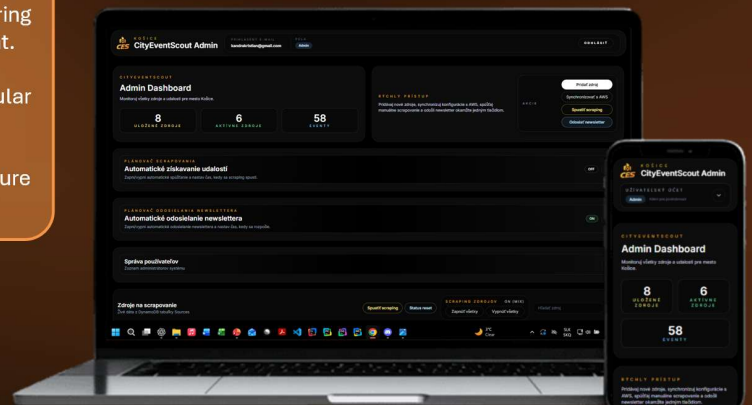
Watchover

Bc. Vladislav Močilenko, Bc. Ivan Demchenko, Bc. Tamara Škovránová,
Bc. Richard Gavrecký, Bc. Marek Hamráček
IBM Company mentors: Ing. Róbert Barsa, Ing. Katarína Šipošová,
Ing. Viktor Ruska   University mentor: Ing. Sergej Chodarev, PhD.

WATCHOVER
Personal Safety App

Problem Description

Walking alone or facing a medical emergency can make anyone feel unsafe, especially at night or in unfamiliar areas.
In such moments, calling for help isn't always possible, and most solutions still rely on constant user interaction.

Architecture

- Android app

- Back-end server managing journeys, setting/contact synchronization and notifications

- Web map

- Smartwatch integration

Features

- Safety check-in

- Location tracking

- Journey planner

- SMS and Email notifications

- Auto alarm

- Sound recording in emergency

- Journey sharing

- Smartwatch support

- Journey deviation and long-stop evaluation

Application Usage

The user starts a journey, after which the application continuously monitors location and activity. If a scheduled check-in is missed, an alert is triggered and selected contacts receive a notification.

Current State

- Mobile app for Android fully developed, installation .apk ready for deployment.

- Back-end server implemented and operational, currently hosted on a home lab environment.

- Web map interface deployed and accessible via the school's Gitlab pages

25

LABOUR DIGITAL

AI Contact Extraction Module

Dávid Firda, Tatiana Čarnická, Tomáš Nagy, Lukáš Skopár
Labour Digital - Pavol Mate, Marek Skokan

Iveta Zolotová
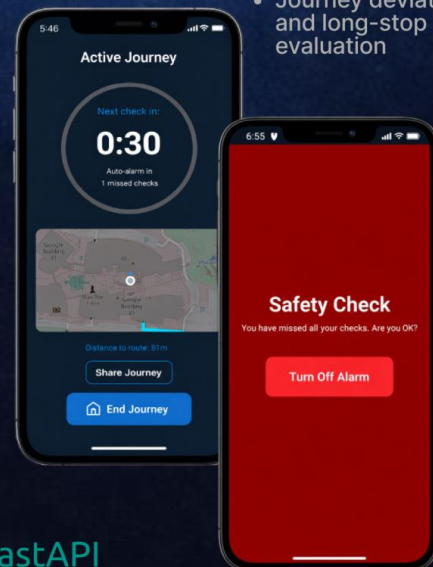
⊙ PROBLEM DESCRIPTION

Manual processing of unstructured contact data and complex relationships from JSON files is inefficient and error-prone.

⚲ SOLUTION ARCHITECTURE

A Python-based backend infrastructure integrating a custom-trained GLiNER model fine-tuned on manually annotated email datasets for high-precision entity recognition. The system employs advanced NLP techniques for unstructured data processing and subsequent mapping of complex relationships within a relational structure.

▶ HOW IT IS USED

Users upload a JSON file with emails to extract. The model extracts the contacts and a visualization of the relationship links is displayed on the page. A copy of this data will be downloadable from the email sent.

✔ SOLUTION FEATURES

Automated JSON extraction

Email integration

Interactive network visualization

Intelligent relationship identification

Domain-specific entity extraction
PERSON, ORG, EMAIL, PHONE, ORG_ADDRESS, TITLE, DATE, EVENT, URL, SOCIAL_URL
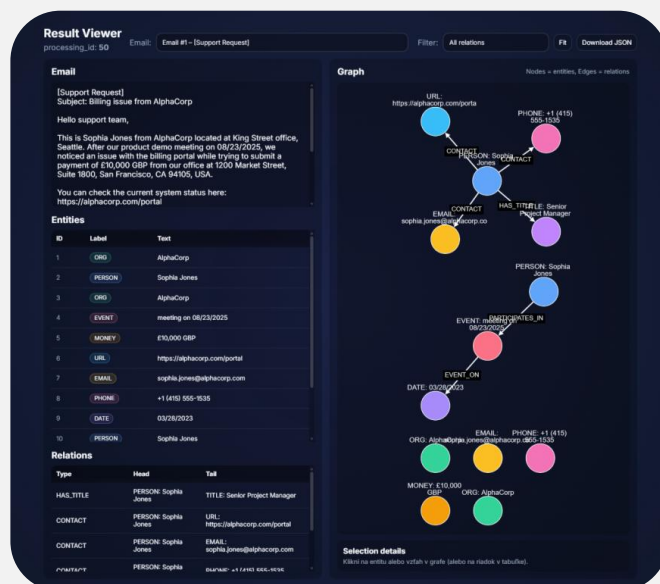
SOLUTION EVALUATION ✓

The system performs AI-based extraction of domain-specific entities including persons, organizations, contact details, events, and addresses, followed by automatic identification of relationships between them.

KKUI Katedra kybernetiky a umelej inteligencie

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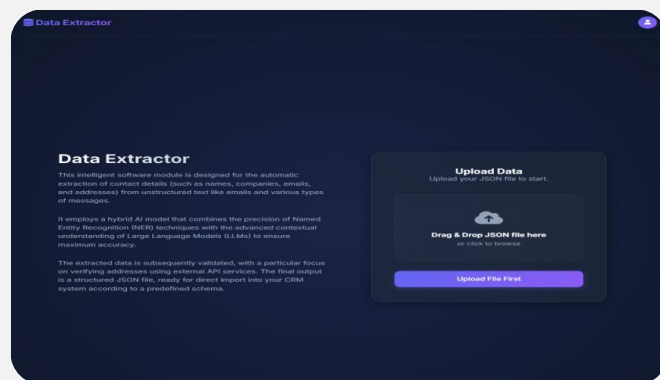
26 ::1

ImpactLINK

Event app for the third sector

Students: Veronika Kalejová, Ján Kapurík, Jozef Belušák, Adam Peško, Robert Kardošš
Company: localhost s.r.o.
Company Mentors: Ivana Mikuličková, Ivan Krzák
University Mentor: Ing. Michaela Bačíkova, PhD.

NEXT.js · PostgreSQL · Fastify · React Native · Prisma

PROBLEM DESCRIPTION

Non-profit organizations lack sufficient resources and contacts to organize events effectively.

They struggle to connect with people, partners, and volunteers who could support them.

There is a lack of a simple tool tailored to the needs of non-profit organizations for creating campaigns.

This is where ImpactLINK comes in, increasing the visibility of the third sector and supporting volunteer engagement.

FEATURES

Non-profit organizations can create and manage events and engage both the public and partners.

An interactive map provides a clear overview of events by location.

AI-powered matchmaking connects event participants based on shared interests and goals.

Integrated chat and email notifications enable direct and fast communication.

ARCHITECTURE

Next.js (Web) — Expo App (Mobile) — tRPC API — Fastify — PostgreSQL (Prisma ORM)
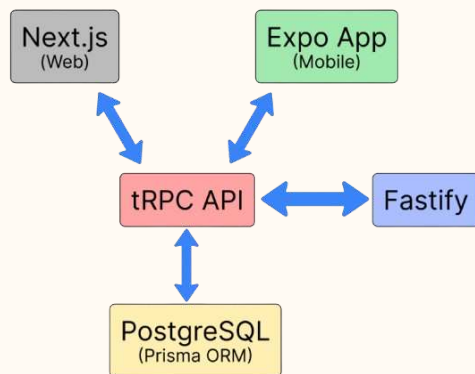
SCREENSHOTS
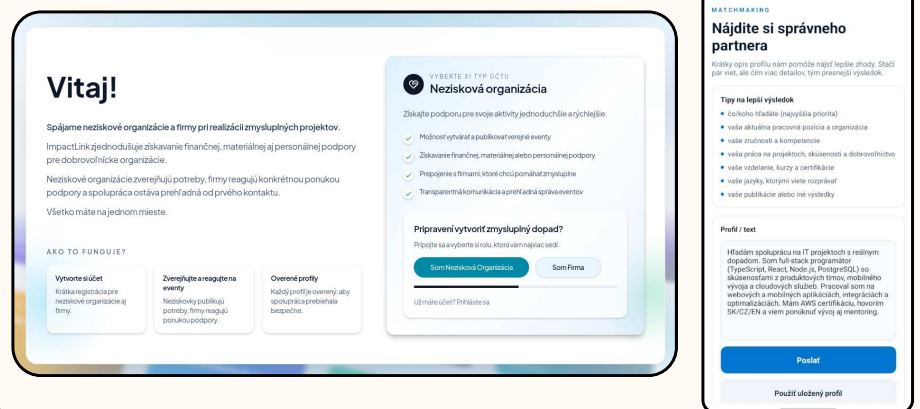
EVALUATION

ImpactLINK increases the visibility of non-profit activities and facilitates their connection with volunteers, companies, and the wider community.

It simplifies event organization and communication, saving time and limited resources within the **third sector**.

It supports the creation of meaningful collaborations and strengthens long-term social and community **impact**.

27 Monitoring of micro-downtimes in SMT technology

Filip Hemlézi, Jana Kocáková, Viet Nguyen Hoang, Matúš Štefaňák, Filip Tomiš
Firma: Magna Electronics, Marek Džačar   Mentor: Ing. Máté Hireš PhD.

Project objectives

- Create a clear real-time visualization of micro-downtimes on SMT lines for an automotive electronics assembly plant using color-coded station status.
- Enable fast identification of station inactivity, reduce operator response time and maintain smooth and continuous production flow.

Project results

- Functional visualization of SMT line micro-downtime, connected to an SQL database and iTAC observer.
- Enables SMT line switching, pop-up notifications during downtimes and simultaneous observation of multiple SMT lines.
- Scalable, production-ready solution with full documentation for future expansion and customization.

Technologies used

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28

Visualization of energy losses due to faults and non-production

Bc. Adam Pavúček, Bc. Oliver Kováč, Bc. Matúš Vaško, Bc. Matúš Penička, Bc. František pazdič

Magna Electronics: Ing. Marek Dzacar   Ing. Máté Hireš, PhD.

Description

This project visualizes energy losses from faults and non-production in **SMT** manufacturing lines. It tracks whether each line is producing or in standby, measures electricity consumption during non-production, and calculates the resulting cost.

Used technology

Springboot – Processes line status, energy data, and cost calculations
Docker – Runs services in isolated, reproducible containers
MQTT – Collects real-time production and energy data from SMT lines
PostgreSQL – Stores production states, energy usage, and costs
Grafana – Visualizes energy losses and non-production costs

Implementation

The system collects real-time production status and energy consumption data from **SMT** lines via **MQTT**. A **Spring Boot** backend processes this data, determines production or standby states, and calculates energy losses and associated costs. The processed data is stored in **PostgreSQL** and visualized through **Grafana** dashboard, with all components deployed using **Docker** for reliable and scalable operation.
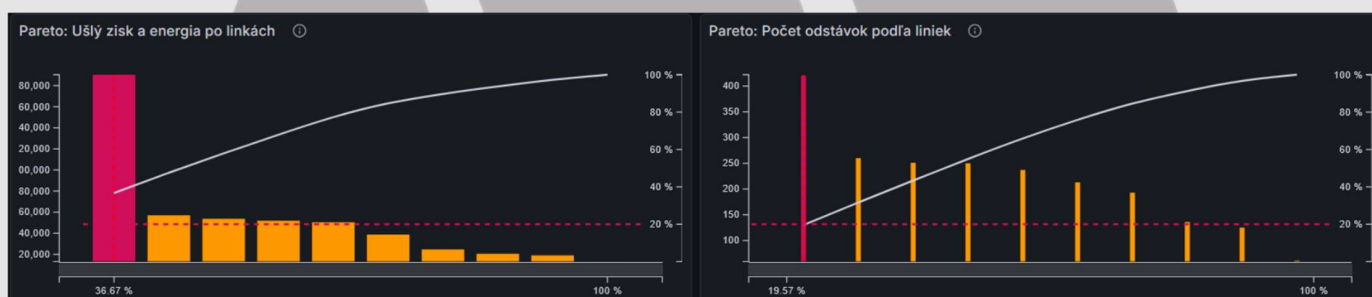
Usage

By converting wasted energy into monetary losses and presenting it through clear visual dashboards, the project helps identify inefficiencies, quantify the financial impact of downtime, and support data-driven decisions to reduce energy waste and improve overall production efficiency.

29

HR bot

based on Microsoft 365

Students: Tymosheva Sofiia, Kucherenko Daniil, Buhaiova Valeriia, Leshchenko Oleh

Company: Magna PT s.r.o.
Company mentors: Martin Žákovič, Robert Packan
University mentor: doc. Ing. Martin Tomášek PhD.

Problem

- Repetitive HR questions
- Time-consuming processes
- Scattered HR information

HR departments face a large number of repetitive employee questions on a daily basis related to benefits, leave, work processes, and company policies. Manual handling of these requests is time-consuming, reduces HR team productivity, and leads to delayed responses for employees. There is a lack of a centralized system that would provide fast and accurate answers 24/7.
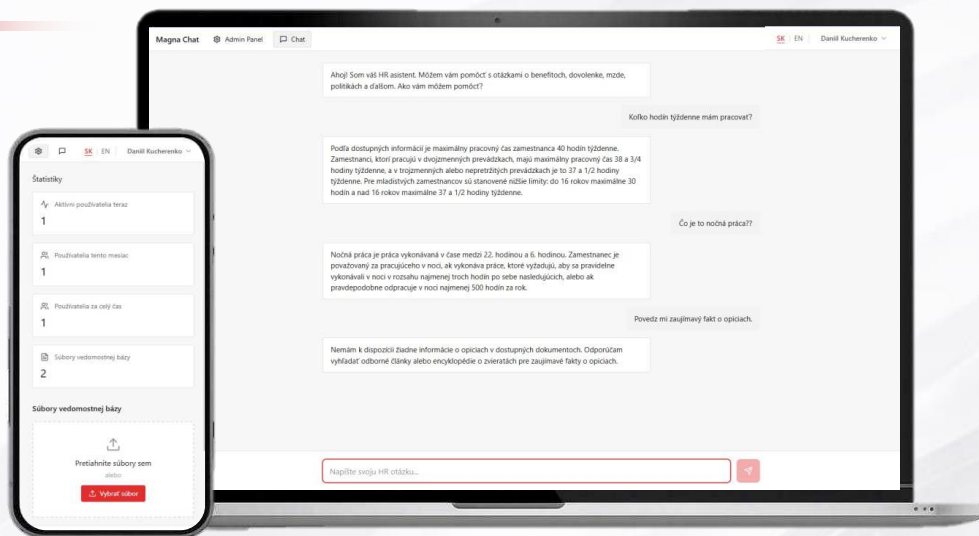
Microsoft 365

Solution

- ☑ **Microsoft Authentication**
  Secure role-based access.

- ☑ **Intelligent HR Bot**
  Automated responses from the HR knowledge base.

- ☑ **Usage Statistics**
  Real-time and monthly active user overview.

- ☑ **24/7 Availability**
  Continuous access to HR information anytime and anywhere.

Results

1. **Time savings:**
   Automated responses reduce HR team workload.

2. **Increased efficiency:**
   Immediate responses for employees.

3. **Security:**
   Microsoft 365 authentication and role-based permissions.

4. **Analytics:**
   Insights based on active user statistics.

React   redis   PostgreSQL   docker

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30

CityScore

Students: Branislav Zurian, Samuel Gallik, Stela Zummerová, Tamara Šmajdová, Tomáš Mesarčík

Company Mentors: Dominik Tkačík, Ján Tkačík

Company: Neuronum s.r.o.   **University mentor:** Eva Chovancová

NEURONUM
EST. 2024

CityScore
Hospodárenie miest

Citizens lack easy access to transparent information about how their city spends public money. Municipal contracts, budgets, and financial statements are scattered across multiple government portals, making it difficult to compare cities or detect suspicious spending patterns.

CityScore is a modern full-stack web application built with React and Vite on the frontend, providing a responsive user interface. The backend is powered by FastAPI with asynchronous PostgreSQL database access.

The system integrates data from multiple official sources including CRZ for contracts, RÚZ for financial statements, and UVO Vestník for public procurement records. A local LLM provides AI-powered contract categorization and comparison analysis. The entire data pipeline runs automatically on a weekly schedule.

Key features

The Contract Explorer allows users to browse and filter all municipal contracts with AI-assigned categories. The system includes suspicious activity detection where AI analyzes contracts for unusual patterns. Financial transparency is ensured through real financial statements pulled directly from official registers.

Users can compare spending across major Slovak cities and track budget allocations against actual expenditures. Public procurement monitoring tracks tender announcements and awards in real-time.


Evaluation

The platform promotes transparency by enabling open analysis of public spending. AI enhancement reduces manual review time. Future work will focus on expanding coverage to all Slovak municipalities.

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31

Learn2Earn

NXTSOFT — Technology next to you!

AI-powered platform for connecting students and employers

Bc. Branislav Babuščák
Bc. Oliver Danko
Bc. Patrik Ištván
Bc. Rudolf Servatka
Bc. Lýdia Veselovská

Company NXT Soft: Ing. Norbert Sándor
University mentor: doc. Ing. Csaba Szabó, PhD.

Problem

- **Students** struggle to find relevant job and internship offers

- **Employers** receive large numbers of unqualified applications

- Hiring process is **often unclear, slow, and lacks real-time feedback**

- Lack of intelligent matching between student skills and company requirements
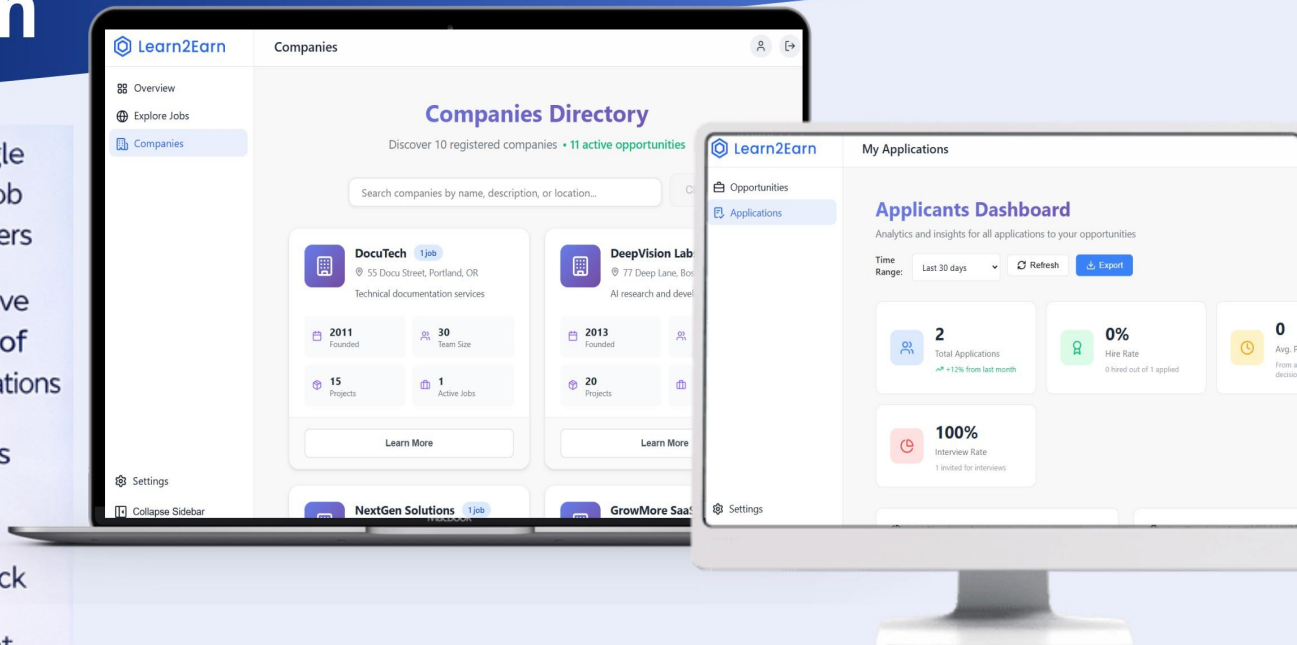
Solution – Learn2Earn

Learn2Earn is a web-based (desktop-oriented) platform:

- connects **students** and **employers** in one place

- allows publishing and managing job offers

- provides an **integrated hiring process** with real-time application tracking

- utilizes an **AI recommendation** system for precise matching of candidates and job opportunities

Key Features

- 🔍 **Job** and **internship** search

- 📄 Online application submissions

- 📊 Real-time application status tracking

- 🤖 **AI recommendations** for job positions based on:
  - student skills
  - employer requirements

- 🖥️ Job offer **administration** for employers

- 🎓 Student profile with skills and experiences

Goals

- ✔ Create a **modern, intelligent platform** that:

- ◉ **simplifies students'** entry into the job market

- ◉ increases recruitment **efficiency** for employers

- ◉ leverages the **potential** of artificial intelligence in HR

Used Technologies

- AI
- React
- TS
- Python
- PostgreSQL
- Git

32

SIEMENS Healthineers

SmartTriage – Intelligent wristbands for triaging patients during mass casualty incidents

Bc. Lukáš Proner, Bc. Milan Kmecik, Bc. Peter Balog, Bc. Adam Borovička, Bc. Štefan Vagaský
Siemens Healthineers mentor: Ing. Bc. Dávid Vaľko Phd.
KPI mentor: doc. Ing. Norbert Ádám Phd.

Technical University of Košice

In crisis situations, time, accuracy, and coordination of rescue teams are crucial

- Traditional triage is **slow** and **inefficient**
- Patient condition is **not continuously monitored**
- **Lack of real-time overview** for the incident commander
- **Risk of errors** under stressful conditions
- **Difficult coordination** of resources and patient transport
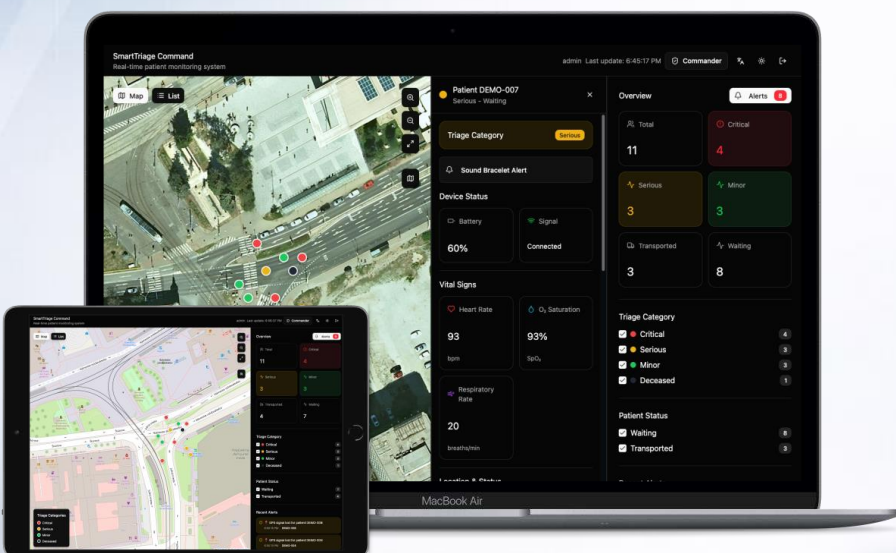
1 SmartTriage Band

is **battery-powered** and measures **heart rate**, **SpO$_2$**, **breathing**, **movement**, and **position**.

2 SmartTriage DataHub

receives data from wristbands, stores it in **PostgreSQL**, and archives historical records.

3 SmartTriage Command

maps patients by status and tracks key statistics using **React** and **Leaflet**.

The final product is capable of **measuring a patient's vital signs** and **assigning a corresponding color** to their **health status** based on a precise procedure.

I Priority treatment	II Delayed treatment	III Walking wounded	IV Deceased

33

SIEMENS Healthineers

CallTrainer 155 - AI-Based Emergency Call Training Platform

Students: Bc. Miroslav Tvrdoň, Bc. Bianka Drábová, Bc. Samuel Ušala, Bc. Levente Valacsay, Bc. Viktor Veterný

Siemens Healthineers Mentor: Ing. Bc. Dávid Vaľko, PhD.   University Mentor: doc. Ing. Norbert Ádám PhD.

1 - MOTIVATION

Emergency medical call operators (155) must react quickly, calmly, and accurately in extremely stressful situations.
Traditional training methods are limited by:
- High costs of live actors
- Limited availability of instructors
- Lack of realistic and repeatable scenarios

This project introduces an AI-driven training/testing platform that enables operators to safely practice emergency calls in a realistic and repeatable environment.
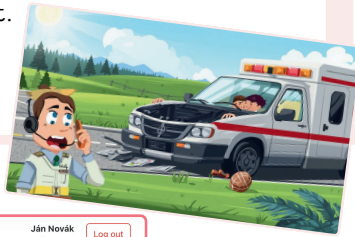
2 - PROBLEM STATEMENT

- Limited access to realistic emergency call simulations
- High cost of training with live actors
- Difficulties in objective evaluation of operator performance
- Lack of detailed conversation analysis and feedback
- Limited scalability of traditional training methods

3 - PROPOSED SOLUTION

We designed and implemented a web-base AI training/testing platform that:
- Simulates real emergency calls using AI-driven callers
- Allows operators to call a simulated patient via phone
- Displays live speech-to-text transcription during the call
- Guides the operator through structured call handling
- Automatically evaluates operator performace after each session

4 - SYSTEM OVERVIEW

VISUAL FOCUS

Operator → Phone Call → AI Patient → Live Transcription → Evaluation

LIVE CALL SCREEN

OPERATOR DASHBOARD

POST-CALL EVALUATION

5 - KEY FEATURES

- Real-time voice calls (operator ↔ AI patient)
- AI-generated caller emotions and behavior
- Live transcription displayed on screen
- Structured emergency call workflow
- Post-call evaluation and feedback
- Scenario-based training (medical emergencies)

6 - TECHNOLOGIES USED

Deepgram - real-time voice agent / transcription from voice to text

Twilio - voice call infrastructure

Huggingface - LLM integration

FastAPI - backend services

React / Next.js - frontend

MongoDB | ChromaDB data storage | PostgreSQL

Docker - containerized deployment
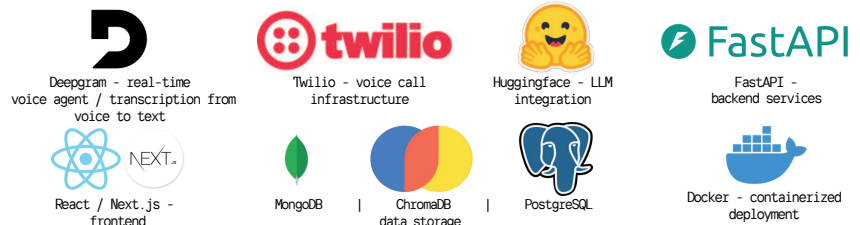
7 - EVALUATION & FEEDBACK

After each training session, the system evaluates:
- Clarity of operator communication
- Accuracy of questions asked
- Reaction time and call structure
- Compliance with emergency procedures
- Overall performance score

8 - TARGET USERS

- Emergency medical call operators (155)
- Training centers
- Educational institutions
- Emergency response organizations

9 - BENEFITS

- Scalable and repeatable training
- Reduced training costs
- Objective and consistent evaluation
- Improved operator preparedness
- Safe environment for learning from mistakes
- Realistic emergency simulations without real risk

SafeRoads

34

SIEMENS Healthineers

Students: Čabáková Juliána, Eliaš Martin, Feliks Christián, Straka Andrej, Takáč Samuel

SIEMENS Mentor: Dávid Vaľko | **KPI Mentor:** doc. Ing. Norbert Ádám PhD.

Problem description

Speeding on roads is one of the main factors contributing to traffic accidents. There is a need for an automated traffic monitoring system that can:

- Measure vehicle speed using a radar sensor
- Capture high-quality photos of passing vehicles
- Automatically recognize license plate numbers
- Record violations with photo documentation
- Provide clear visualizations for analysis
- Operate autonomously with low energy consumption

Solution architecture

Hardware Sensor + Camera → Raspberry Pi Processing

Web Dashboard ← Backend API + AI
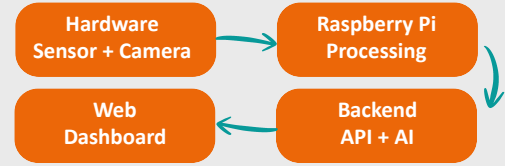
- **Hardware:** Custom box with camera, radar sensor, and Raspberry Pi Zero 2W
- **Backend:** FastAPI + YOLOv8 + fast-plate-ocr + SQLite database
- **Frontend:** React + TypeScript + TailwindCSS + Vite.js
- **Communication:** REST API, real-time data processing

Solution features

- **Compact hardware:** Custom box with integrated sensors
- **Radar sensor:** Accurate real-time vehicle speed measurement
- **HD camera:** Photo capture for license plate detection
- **AI license plate detection:** YOLOv8 model with high recognition accuracy
- **Severity classification:** Low, Medium, High, Critical according to the violation
- **Autonomous operation:** Low energy consumption
- **Real-time dashboard:** Web application with live updates
- **Export and reporting:** PDF reports, CSV export, statistics and graphs

Status - How to Use It

The system is functional and has been tested in real traffic:

- **Backend API -** receives data from Raspberry Pi, processes images, detects license plates
- **Web dashboard -** displays violations, statistics, graphs, and allows export
- **Database -** stores all records of violations with metadata
- **Real-world testing -** verified in practice with customized conditions

Usage: Raspberry Pi measures speed, captures a photo, sends it to the backend. The backend recognizes the license plate and saves the violation. The dashboard visualizes the data in real time. The system works in optimal lighting conditions and at controlled speeds.

## Application hardware and screens
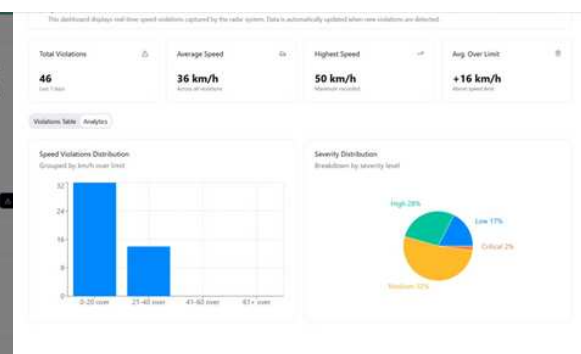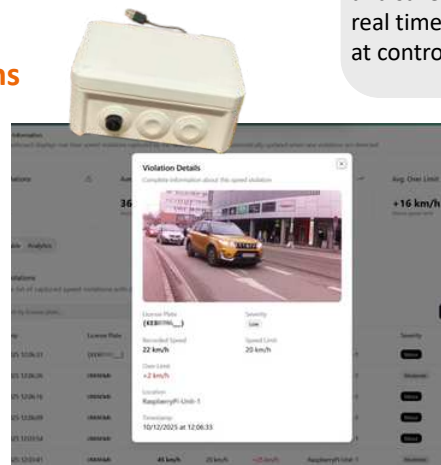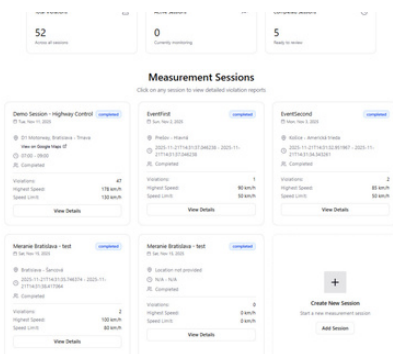
Evaluation of the solution

- **Achievements:** We have successfully created and tested a complete end-to-end system in real traffic – from physical hardware (custom box with camera and sensor) through processing on Raspberry Pi to a web application. The hardware is compact, portable, and ready to use. AI license plate detection using YOLOv8 achieves high accuracy in optimal conditions. The dashboard provides an intuitive and modern user interface with real-time updates.
- **Practical testing experience:** Real-world testing revealed important factors affecting accuracy: lighting quality, vehicle speed, and camera distance. The system works well in good lighting conditions (daytime, clear skies) and at moderate speeds. The use of modern frameworks (FastAPI, React, TypeScript) ensures scalability. The SQLite database provides simple and efficient persistence.
- **Expansion options (based on practical findings):** Higher camera quality for better license plate detection at high speeds and low light, support for multiple radars simultaneously, cloud synchronization and central monitoring, advanced analytics with ML (prediction of risk areas), night vision (IR camera).

LIVE IT PROJECT

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SIEMENS
Healthineers

Extending the capabilities of Google Clusterfuzz

Marek Čontofalský, Radoslav Čider, Daniel Rusnák, Peter Matklučík, Adam Fabišík
Siemens Healthineers (Katarína Amrichová)   school mentor: Ondrej Kainz

Safer .NET thanks to fuzzing

Integration of SharpFuzz and libFuzzer .NET into Google ClusterFuzz

Project realized for Siemens Healthineers using the open-source tool Google ClusterFuzz.
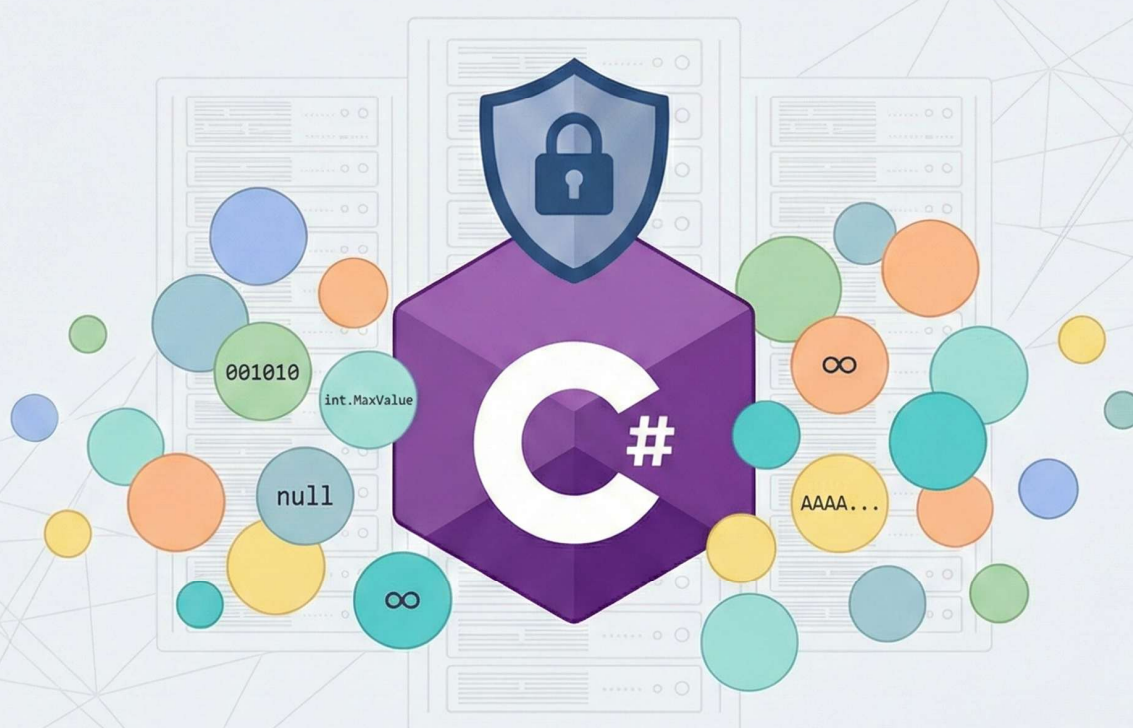
Project Goal

Extend the open-source fuzzing orchestrator Google ClusterFuzz with support for fuzzing .NET/C# applications. The implementation of SharpFuzz and libFuzzer .NET integration allows automated finding of errors and crashes in C# code at scale.

SIEMENS
Healthineers

Google

kpi

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PROJECTS

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36

SIEMENS Healthineers

SMART CITY HEATMAP

Alex Szaffko, Daniil Radchenko, František Sontág, Hung Do Quoc, Jakub Filičko

Siemens Healthineers mentors: Ing. František Radačovský, Ing. Michal Popovič
University mentor: Ing. Eugen Šlapak, PhD

PROBLEM

Choosing an ideal location in a city depends on multiple factors such as infrastructure, environment, and accessibility, which are difficult to evaluate together

Existing map services show locations of services but do not provide an overall assessment of urban quality of life

SOLUTION FEATURES
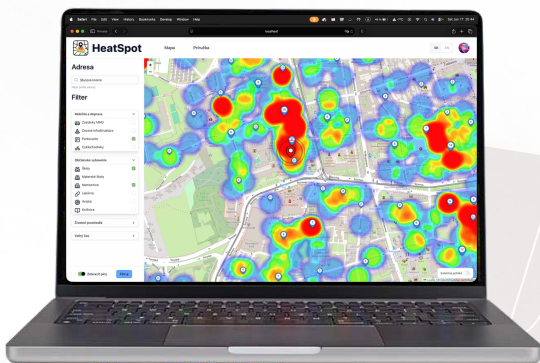
Custom user-defined preferences

Heatmap visualization of city suitability

Evaluation of multiple criteria:

- Green areas and parks
- Cycling infrastructure
- Healthcare facilities
- Public transport
- Air quality and noise
- Accessibility and safety

Interactive map navigation and comparison

EVALUATION

Fully functional web application with interactive heatmap visualization

Integrates multiple urban data sources into a single suitability score

Supports diverse user scenarios and preference-based decision making

Enables user login to save and reuse preferences, scenarios, and results

Overpass API

37

Project title

Agile Race

Students **Matúš Pavuk, Tomáš Vargoško, Gabriel Urban, Samuel Králik, Benjamín Vateha**
Company **Slovak Telekom a.s.**

University mentor
Karol K., Tomáš J., Stanislava F., Gabriela R. **doc. Ing. Peter Feciľak PhD.**
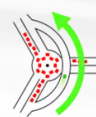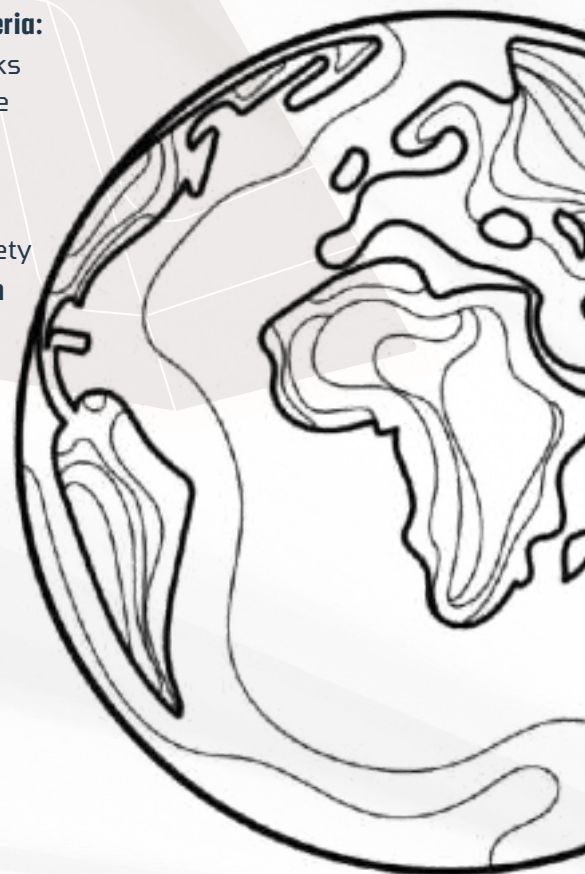
Problem Description

Agile Race competition is dynamic charity event with many teams and stations. Manual score tracking often causes errors, lack of transparency, and delayed results, reducing fairness and the overall experience.

AGILE RACE

FEATURES

Central Command Center

A single web platform connecting teams, organizers, admins, and spectators.

Digital Scoring via QR

Fast team identification and error-free point entry directly from anywhere.

Live Leaderboard for Everyone

Real-time TV results that amplify emotions and keep the tension high.
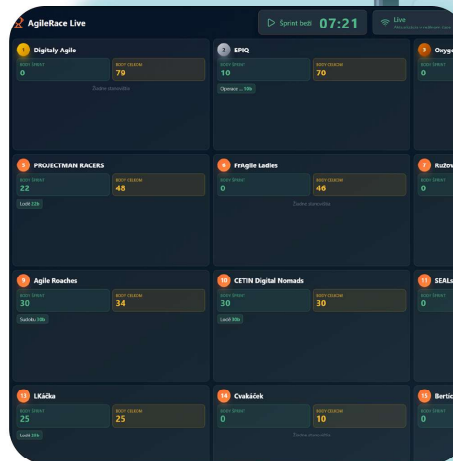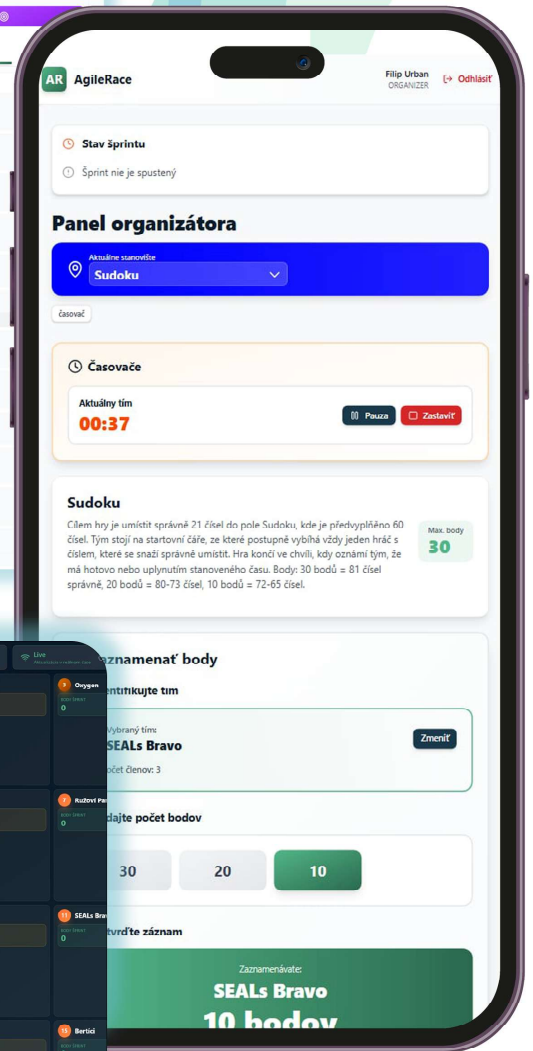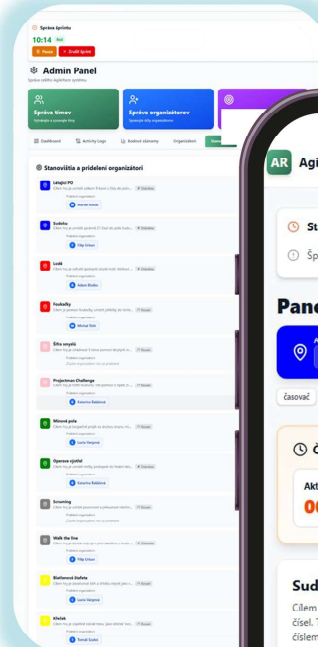
Solution Evaluation

Our web app is **deployed and ready** for its full use on next AgileRace 15th of May. The proposed solution significantly **reduces** scoring **errors**, **improves** race **transparency**, and ensures **fair and auditable result evaluation**. It **enhances the experience** for organizers, competitors, and spectators alike while effectively supporting the application of agile principles in a real-world environment.

>kpi

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38

Platform for the Analysis of Rental Apartments

Bc. Matej Čorba, Bc. Martin Čupalka, Bc. Dávid Tkáč, Bc. Kristián Šprinc, Bc. Daniel Duplák

SNA - Ing. Matúš Smoleň, Bc. Dávid Kačurik   TUKE - Ing. Filip Gurbáľ, PhD.

Problem

- Rental listings are **scattered** across multiple sites.
- Prices feel arbitrary, they **lack clear context** on location and value.
- Neighborhood research (transport, schools, parks, groceries) is **time consuming**.

Solution

- **We aggregate** rentals from major Slovak listing websites into one unified platform.
- **We clean** and enrich listings with neighborhood intelligence and market context.
- **We score** each apartment (0–100) so users instantly see value - not just price.

Interactive Map
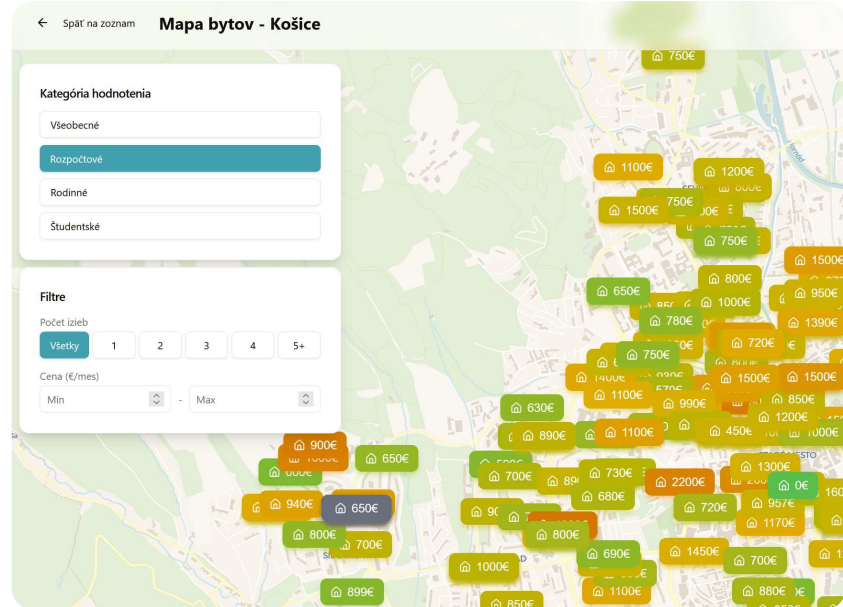
Key Features
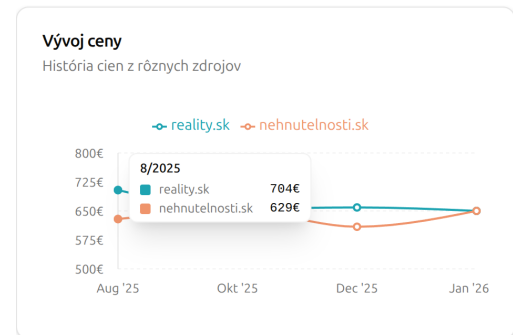
Architecture
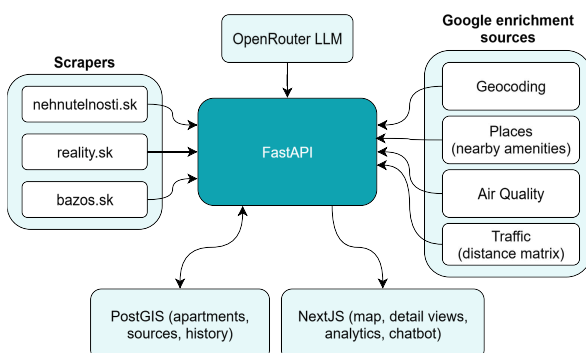
Evaluation

- Describe needs in **plain language** and get matches.
- Track **price history** across sources.
- **We score** each apartment (0–100) so users instantly see value - not just price.
- Verify what's nearby.

More confident renting through comparable, contextual, data-driven evaluation.

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39 Noise Buster

Solar Turbines A Caterpillar Company

Matúš Sabol, Adam Juroš, Ihor Rybitskyi, Martin Mitro, Bohdan Stadnyk
Mentor z Solar Turbines Slovakia: Matej Podstavek
Mentor z TUKE: doc. Ing. Eva Chovancová PhD.

Problem Description

Traditional SCA tools (JFrog Xray) produce **hundreds** to **thousands** of vulnerability findings.

- A large portion of finding are irelevant to real application use based on context

Goal: Reduce SCA Noise & Save Engineering Time
While preserving real security threats

Key Features

- ☐ 🤖 Two-level AI filtering (context + security)

- ☐ 🎯 Context-aware relevance scoring (0-10)

- ☐ 🛡️ Deterministic rule-based filtering

- ☐ 🚦 Clear prioritization: must-fix vs. low-impact

- ☐ ⚡ Fast & scalable backend (FastAPI)

Project Status & Usage

1. **Upload**: SCA (Xray) export & app source code.

2. **Process**: Run AI & rule-based analysis.

3. **Review**: Get prioritized findings & summaries.

Functional prototype validated on JFrog Xray for developers, security engineers, and tech management.

Main Idea

Noise Buster combines traditional SCA output with **source code context** and **multi-level AI** analysis to determine which vulnerabilities truly matter for a specific application.

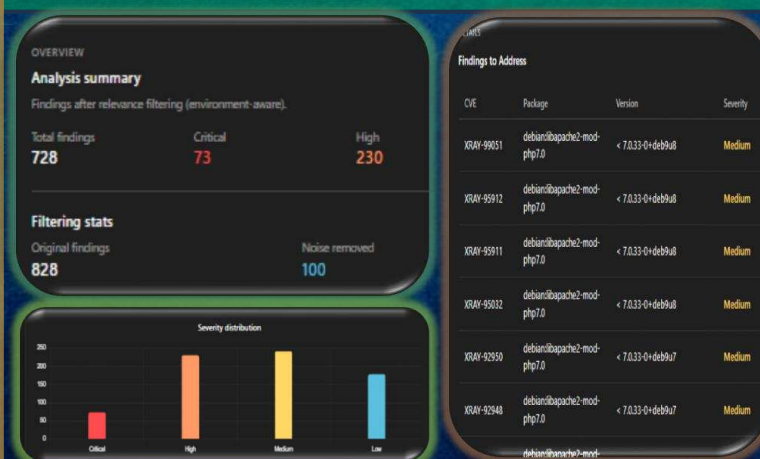Instead of asking „**Is this vulnerability known**?"

Noise Buster asks:
➢ „**Is this vulnerability relevant** in this application?"

Architecture

User Interface

40

Histomap Kosice
Digital platform for cultural heritage data

Martin Dinja, Matej Dedina, Aleksandr Kuznetsov, Serhii Yemets, Ruslan Khamitov

Company mentor: Stavebná fakulta TUKE - Ing. Andrea Hrubovčáková
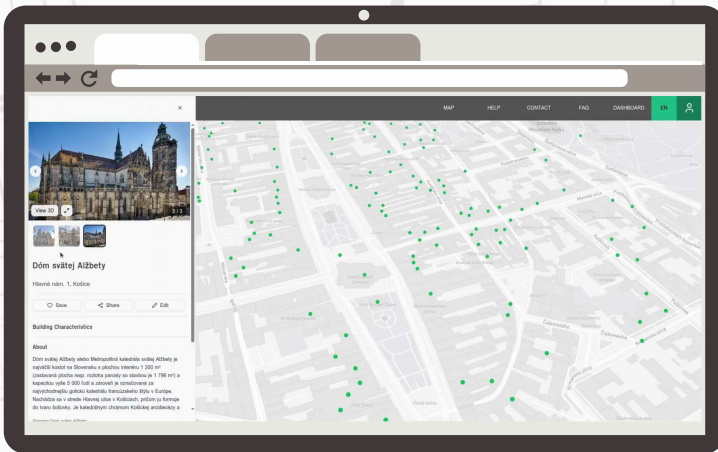University mentor: Ing. Filip Gurbáľ, PhD. (KPI)

Stavebná fakulta

Problem

Information about national cultural monuments is fragmented across archives, documents, and institutions.
Data is often **unstructured**, **difficult to access**, and not suitable for modern digital use.
This limits transparency, reuse, and informed decision-making, especially for investors.

Solution

- **Web-based client–server** architecture
- **Central relational database** as a single source of truth
- **Unified data model** for monuments and their sub-objects
- **API-based backend** with role-based access control
- **Reactive frontend** with map and media visualization

Current State

- Core data model implemented
- Backend API and database operational
- Admin tools for data management
- Initial frontend views available
- System ready for further data population and testing
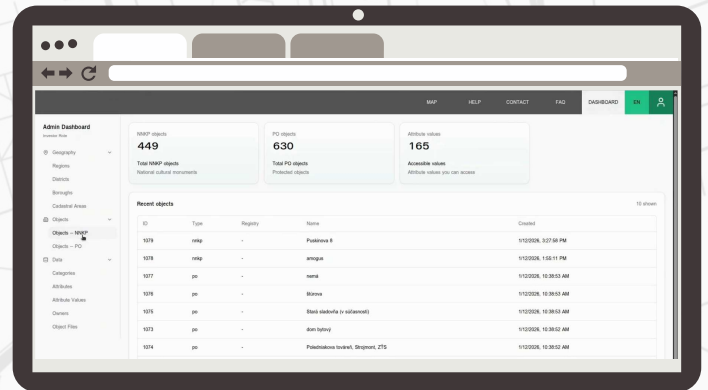
Key Features

- Hierarchical structure (monument → objects)
- Unstructured document parsing with AI
- Multilingual data support
- Media galleries and document storage
- Fine-grained visibility per user role
- Investor-specific access to selected data

Evaluation

The platform successfully centralizes heterogeneous heritage data into a structured system.
It improves accessibility, supports different user groups, and provides a solid foundation for future extensions and real-world use.

LIVE IT PROJECTS

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AI SmartDesk

COMMON QUESTIONS, INSTANT SOLUTIONS

Technická univerzita v Košiciach
Ústav výpočtovej techniky

CASSOVIA CODE

Kyrylo Bulyk, Dmytro Kolosovskyi, Maksym Berkovskyi, Dmytro Protsun, Vladyslav Lehkobyt

**ÚVT mentor**: Ing. Michal Ennert, PhD.
KPI mentor: doc. Ing. Branislav Madoš, PhD.

Problem

IT support is often **burdened with repetitive and simple requests**, which require additional time and effort to respond to.

Solution

AI SmartDesk platform seamlessly integrates into your existing ticket ecosystem to **automate the IT support** - from live chat conversations to background ticket analysis in your ticket system.
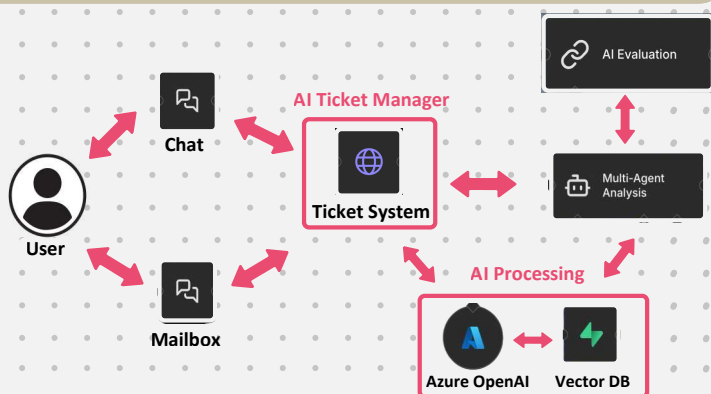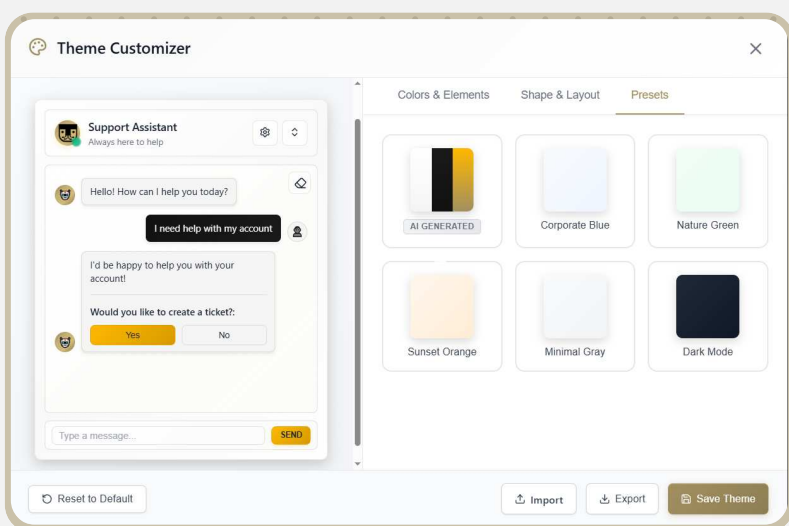
Resolve routine queries in seconds using your **ticket history, documentation, and curated resources** —freeing your team for what matters.

Smart AI knows when to handle and when to hand off. **Only complex issues reach your team.**

Chat, email, or portal — SmartDesk delivers consistent answers across every channel, powered by your ticket system.

AI gets smarter with every ticket through **evaluations and user feedback**.

Speak any language. Support any style.

Plug directly into your existing ticket system.

Evaluation

The project is deployed as an extension of a university's Helpdesk system, **SmartDesk is now live** on the TUKE cloud domain, actively supporting their IT infrastructure. While purpose-built for academic environments, **the platform's architecture is deliberately flexible**—designed for seamless adaptation across diverse industries, ticket management systems, and knowledge domains.

JS · n8n

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KPI

42

AI ASSISTANT FOR TUKE PORTAL

Students: Volodymyr Kolesnikov, Yevhenii Bilozor, Daniil Skirda, Andrii Kolomiiets, Yaroslav Yakushevych

ÚVT Mentor: Ing. Michal Ennert PhD.
KPI Mentor: doc. Ing. Branislav Madoš PhD.

TECHNICAL UNIVERSITY OF KOŠICE

1. You are lost ✕

Modern websites are complex and fragmented. Users often don't know where to find specific information, so they waste time clicking through pages or repeating searches.
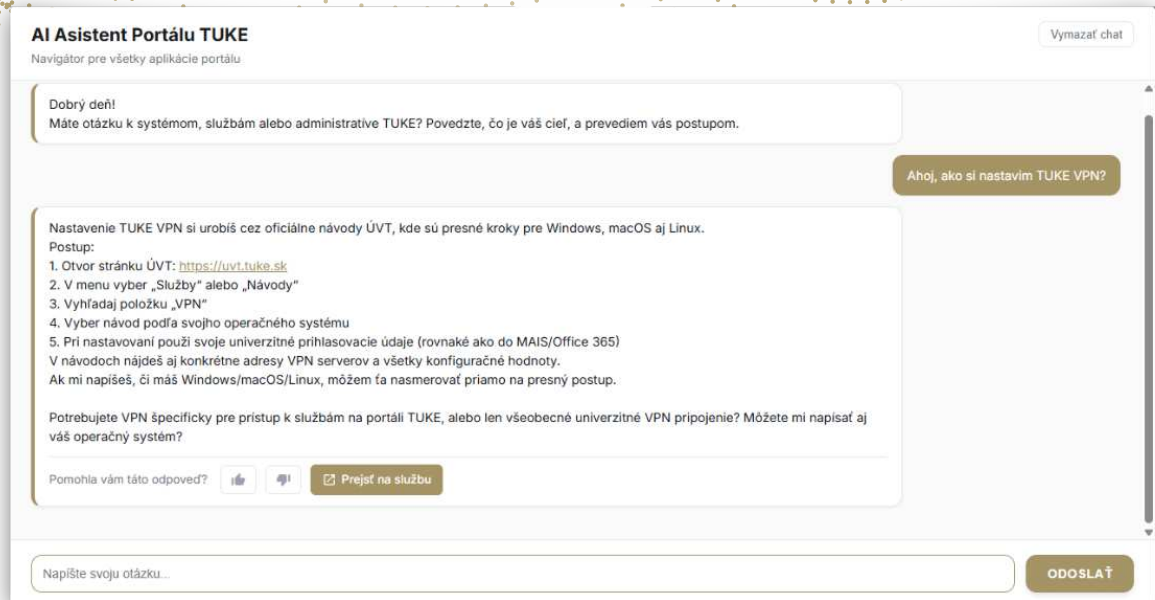
LOST ON THE WEBSITE?
USE AI NAVIGATOR

2. AI Navigator ✕

The AI Navigator guides users step by step to the exact information they need. It explains where to go, what to click, and how to complete the task.

Our solution is versatile. It can be applied to any web page.

Manager: finds required service.
Assistant: generates a response.
Evaluator: checks the accuracy.

3. Found what you need ✕

Users reach the right information faster and with less effort. Clear guidance, accurate answers, and direct access to the right pages turn complex websites into simple, intuitive experiences.

chat   LLM   database   scraper

43

Slovak Blind and Partially Sighted Union
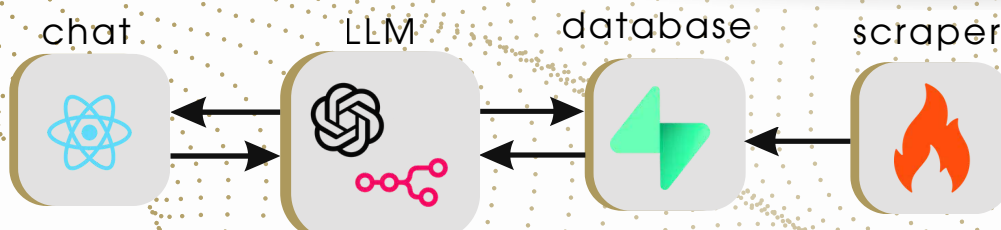
Bc. Alex Vereš, Bc. Andrej Ján Rišian, Bc. Jozef Király,
Bc. Simona Michaliková, Bc. Slavomír Švigar
Company mentor: Ing. Ján Podolinský
School mentor: Ing. Eugen Šlapak, PhD.

Platform for Information Distribution and Reception for Visually Impaired People

Problem:

The organization lacked an accessible platform for publishing information and an accessible platform for receiving information for visually impaired users.
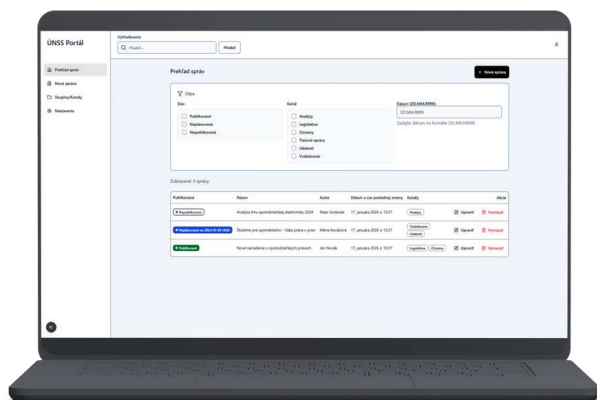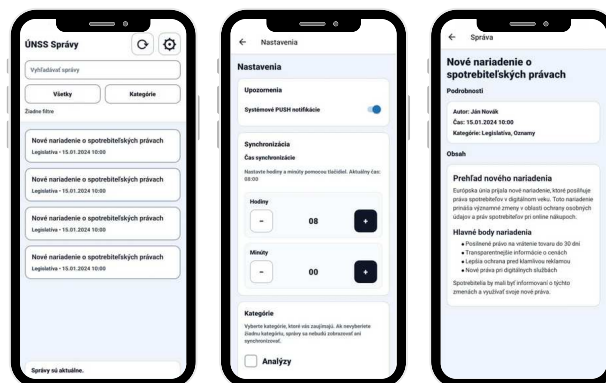
Solution overview:

Web Portal - create, schedule, and manage articles,

Mobile App - accessible interface for receiving information,

Multi-platform - works on Android, iOS, BlindShell, and Corvus,

Accessibility - fully usable with screen readers and assistive technologies.

Key features:

Channel-based content delivery.
Scheduled publishing & notifications.
Filter by channels and unread/read status or published time.
Every interface element labeled and **accessible.**

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VerbalSign

44
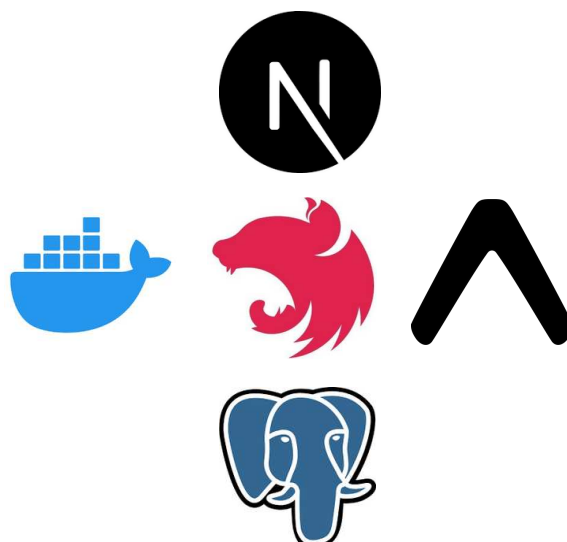
Študenti: Danylo Kravchenko, Andrii Pokrovskyi, Vladyslav Lukinchuk, Dávid Šponták, Denis Oros

Mentori projektu: Ing. Martin Nguyen, Ing. Branislav Baran | Ing. Matúš Sulír PhD. , prof. Iveta Zolotová CSc.

VISMA

SPEECH → SIGN
INSTANTLY

QR kód na video

Problém

> Milióny ľudí na svete používa posunkovú reč, no tento typ komunikácie stále zostáva mimo digitálnych systémov

> Nedostatok kvalifikovaných tlmočníkov je celosvetový problém

> Medzi rečou a gestom častokrát vzniká komunikačná bariéra

Riešenie

> Hovorená reč sa analyzuje pomocou AI nástrojov

> Význam sa transformuje do posunkovej formy

> 3D avatar zobrazuje slovenské alebo americké posunky

> Systém pracuje v reálnom čase s čo najnižšou latenciou

Technológie

> Modulárna webová architektúra

> Rozpoznávanie reči za pomoci jazykového vstupu, videa, alebo nahrávky pomocou API služieb

> Python | Angular 17 | Three.js | model T5

kpi

KKUI Katedra kybernetiky a umelej inteligencie

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45

VISMA

THE BEDSIDE VISUAL GUIDE

Martina Spišáková, Patrik Bogno, Tomáš Krokus,
Daniel León Labanc, Peter Pöhm
Mentori: Ing. Marek Tomko (Visma), doc. Ing. Stanislav Ondáš, Phd. (TUKE)

Daily routines can be challenging for young and autistic children, especially during transitions. Clear structure helps children understand what comes next, supports their independence, and makes everyday routines calmer for the whole family.

We developed a mobile app that connects via Wi-Fi to an ESP-based LCD display, allowing parents to create and send customized daily tasks that appear as clear visual cues for the child.
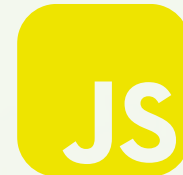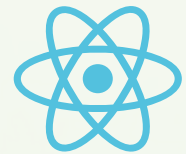
The solution was assessed for usability, clarity, and everyday practicality. The visual task display reduced confusion and supported smoother transitions, while customization increased engagement. Overall, the system showed strong potential to reduce parental stress and support children's independence.
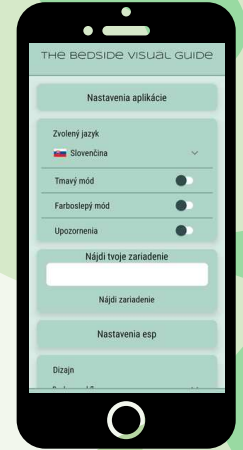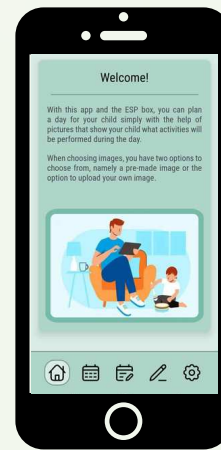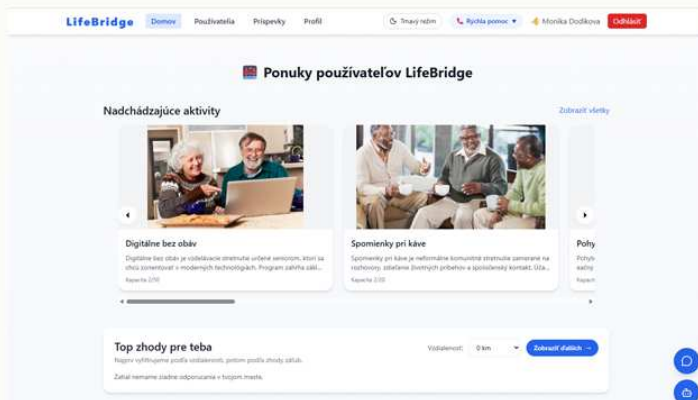

Key Features

- Visual task display
- Customizable routines
- Wireless connectivity
- "Now & Next" sequencing
- Child-friendly design
- Parental support
- Language selection

KEMT

LIVE IT PROJECT

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LifeBridge

Bc. Richard Gaál, Bc. Jozef Horč, Bc. Lukáš Hudák, Bc. Boris Karpjak, Bc. Adam Lukáč

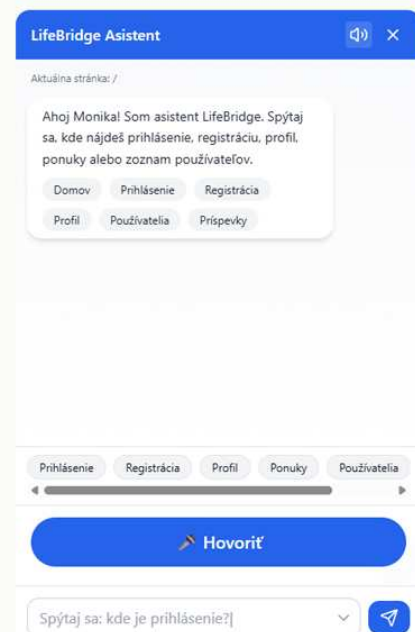Nexer Group AB, Radovan Šalitroš, MBA   Doc. Ing. Stanislav Ondáš, PhD.

Problem description

- Hard to find help/activities,
- Offers and needs are scattered,
- Missing a local way to connect people.

Solution features

- Activities + details,
- Top matches,
- Users + ratings,
- Community posts,
- Chat,
- Voice features,
- Crisis helplines.

Status – how it's used

- Registration + interests,
- Sign in,
- Home: activities + map,
- Community: posts + chat + video call.

Solution architecture

- Frontend: React + TypeScript (Vite),
- Backend: Python REST API,
- DB: MySQL.

Solution evaluation

- Faster connection between people,
- Less loneliness + stronger community,
- Safe communication (chat + calls).

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47

AI Senior Companion

Bc. Magdaléna Majerčáková, Bc. Matúš Stašík, Bc. Matúš Stahovec. Bc. Tomáš Pomšár, Bc. Jakub Bajo

Visma Labs s.r.o - Ing. Imrich Lakatoš   **doc. Ing. Stanislav Ondáš, PhD.**

48.

Solar Turbines
A Caterpillar Company

Digitálny odpadový manažér / Digital Waste Manager

Team: Bc. Kantor D. Bc. Kövesi D. Bc. Kövesi M. Bc. Jasenka K. Bc. Sedrovič K.
Solar Turbines Slovakia: Ing. Mrázová J. Ing. Marková L.
Technical University of Košice: doc. Ing. Stanislav Ondáš, PhD

Digital Waste Manager

The Challenge:

A lot of people want to recycle, but they encounter barriers:
Lack of information
Lack of motivation
Goal: To remove uncertainty in sorting and motivate people to recycle more.

🏗️ *App architecture*:

1. **Frontend:** 📱 React Native App
2. **Backend:** ☁️ Backend API
3. **Database:** 🗄️ Postgresql Database
4. **Additional functions for the application:** 🗺️ Maps, 📅 Calendar, 🏆 Achievements and so on

Detailed explanation of key features:

👤 **User Profile:** Registration, tracking recycling statistics and achievements.
📷 **Scanner:** Waste identification using a photo. Instant answer to which bin the waste belongs to.
🗺️ **Interactive Map:** Display of the nearest waste separation bins and collection yards based on GPS location.
🏆 **Achievements:** Points system for each scan and correct sorting. Leveling up and unlocking unique achievement badges.
📅 **Export Calendar:** Clear schedule of export of various types of waste.

Impact & Conclusion:

✅ **Real-time education:** The user learns to sort directly at the bin, not from leaflets.
✅ **Reduction of contamination:** More accurate waste identification leads to a cleaner recycling stream.
✅ **Increased motivation:** Thanks to achievements, a boring duty becomes a fun activity with measurable progress.
✅ **Data centralization:** All information (what, where, when to throw away) is in one place on the phone.

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49
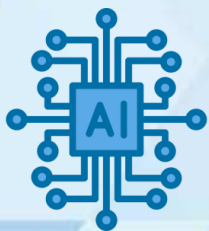
NXTSOFT

AI Chatbot for Municipal Website

Jozef Kijac, Branislav Koblik, Ľubomír Foľta, Samuel Ilaš, Valerii Kutsenko

Mentors: Matej Kovacs (NXTSoft s.r.o) | doc. Ing. Stanislav Ondáš, PhD. (KEMT)

Problem Description Citizens often **struggle to find** essential information like **office hours** or **trash collection** on municipal websites. Data is **scattered across pages and PDFs**, leading to repetitive questions that increase staff workload.

AI Chatbot – ChatGPT

Ahoj! Začali sme nový chat. Ako ti môžem pomôcť?

Koľko sa platí daň za psa v bytovke?

...

Napíšte správu...

Poslať

Status & Usage

Live Deployment - The solution is a functional prototype currently **deployed on the company's Azure infrastructure**.
Data Indexing - The system initializes by automatically scanning and indexing the municipal website into the vector database.
User Interaction - Citizens simply open the chat widget and ask natural questions (e.g., *"When is the next plastic collection?"*).

Key Features

24/7 Real-Time Support - Delivers **instant responses** to citizen inquiries around the clock, reducing wait times.
Grounded Accuracy - Answers are generated from verified website.
Seamless Integration - **Plug-and-play** embed compatible with any CMS.

Solution Architecture

Automated Data Collection
- **Crawler:** Scans the full website (pages + subpages) and produces **clean knowledge chunks**.

Backend Service
- **Intelligent Orchestrator:** Manages conversation flow and connects to external tools.

Chat Widget (Website UI)
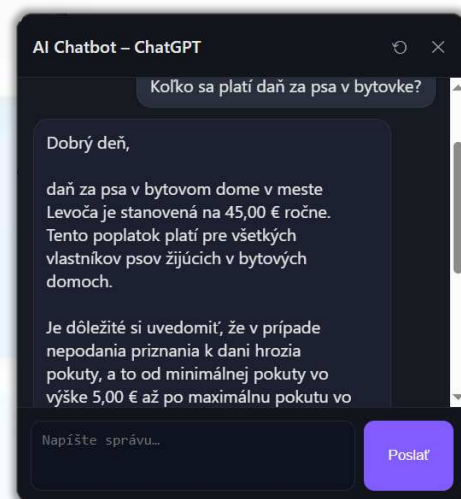- **Plug-and-Play:** Simple **one-line embed** for easy integration into any website.

Solution Impact

AI Workforce: An active AI agent handles inquiries, reducing municipal workload.

Digital Transformation: Transforms web pages and PDFs into a unified interactive service.

AI Chatbot – ChatGPT

Koľko sa platí daň za psa v bytovke?

Dobrý deň,

daň za psa v bytovom dome v meste Levoča je stanovená na 45,00 € ročne. Tento poplatok platí pre všetkých vlastníkov psov žijúcich v bytových domoch.

Je dôležité si uvedomiť, že v prípade nepodania priznania k dani hrozia pokuty, a to od minimálnej pokuty vo výške 5,00 € až po maximálnu pokutu vo

Napíšte správu...

Poslať

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Digitalization of an Educational Nature Trail in a Botanical Garden
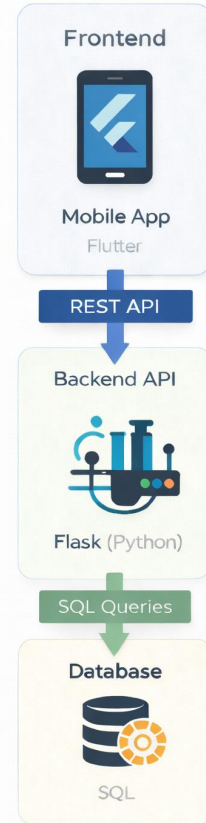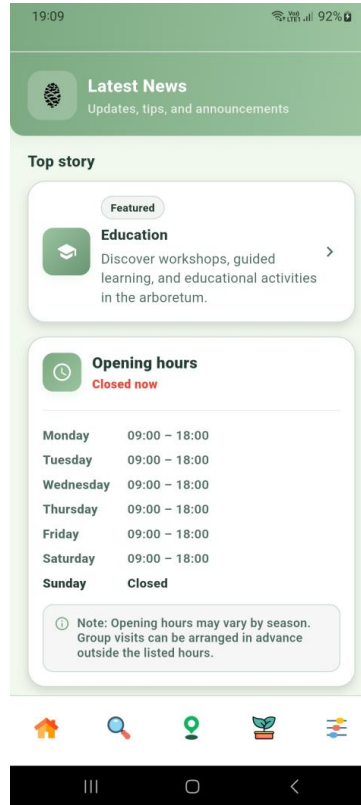
Bc. Ján Pták, Bc. Simon Hollý, Bc. Samuel Furda, Bc. Jakub Schwarc Bc. Roman Kristian Gajdoš

Digital Health Slovakia, Michal Juhas   Ing. Ján Staš, PhD.

Problem Description

- Visitors lack a single mobile source of information

- Information is spread across signs and websites

- No interactive or on-site digital guidance

- Need for a modern, visitor-friendly solution

Solution & Usage

- Mobile app with centralized garden information

- Clear navigation and intuitive user interface

- Access news, plants, map and key information

- Simple usage: open app and explore content
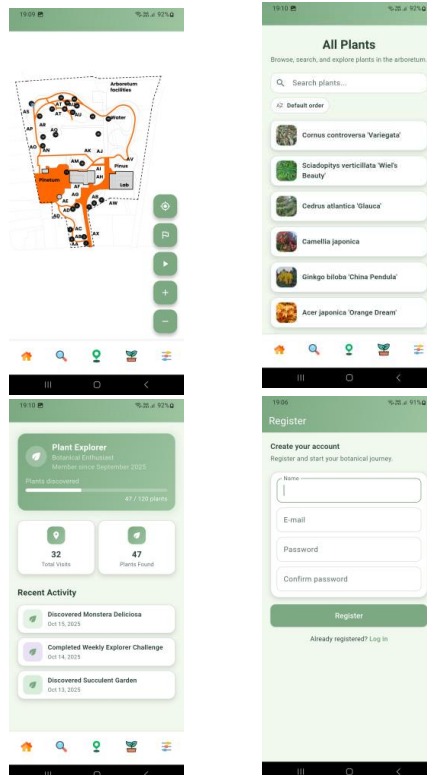
Evaluation

- Improves visitor's experience and accessibility

- Clean and scalable application architecture

- Functional prototype ready for future extensions

- Suitable for real-world deployment in botanical gardens

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51

SportBuddy

Bc. Jozef Kovalčín, Bc. Kamil Berecký, Bc. Ján Malinovský, Bc. Samuel Franko

bart.sk s.r.o., Ing. Erik Sasák   doc. Ing. Stanislav Ondáš, PhD.

SportBuddy

Find your team. Play more.

⚠ Motivation

- Hard to find enough teammates at the right time.
- Messy coordination through group chats and messages
- No single place to discover venues and organize local games
- Skill and availability mismatches reduce game quality
- Players miss real-time updates (changes, reminders etc.)

💡 Solution Features

- User profiles & secure authentication system
- Activity creation and management (CRUD)
- Interactive and venues discovery
- Smart filters (sport/skill/age/price)
- AI search & activity creation
- Chat + notifications (in-app/push)

System Architecture

Frontend
React/Next.js
↔
Backend API
Node.js/Prisma
↔
Database
PostgreSQL

Prisma ORM   Better Auth   Google Maps API   Gemini AI

🚀 How to Use

1. **Sign Up & Create profile**
   Create account and set sports preferences

2. **Discover & Match**
   Find nearby players and activities

3. **Connect & Play**
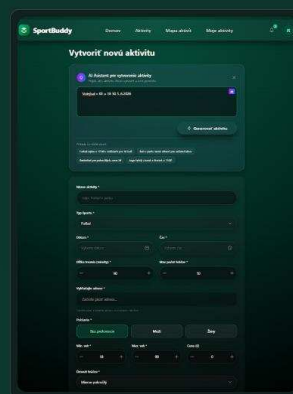   Join events and build communities

🖼 Application Screenshots
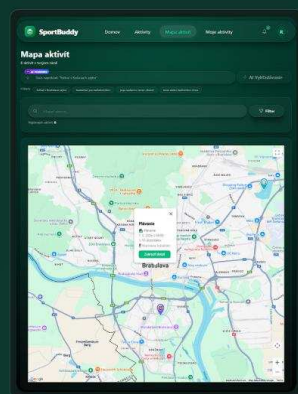
📍 Interactive activity map
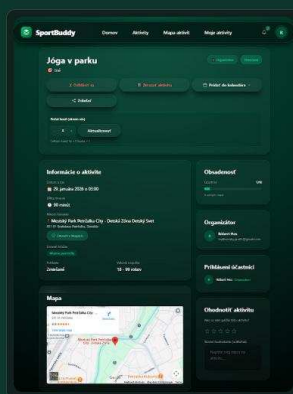
🏠 Activity details dashboard

📅 Creating new activities with AI

📈 Evaluation & Results

- Core user flows validated end-to-end (sign up/login → create/join activity → coordinate)
- Stable activity management with participation states, capacity handling, and recurring events.
- Location & venues features verified (map coordinates, venue details, favorites/reviews support)
- Real-time coordination confirmed via in-activity chat plus notifications with user preferences

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Magna Ride Share App

Daniel Konečný, Dávid Gonda, Dávid Maček, František Koperdák, Lukáš Balog
Company - Magna
Mentors - Peter Štefanko
Polina Mykhailenko

University mentor – Stanislav Ondáš

Problem & Solution

Daily commuting increases costs and traffic while many cars remain underused. This Power Apps-based carpooling application for Magna employees enables easy ride sharing by allowing users to create or join trips supporting efficient and sustainable commuting.
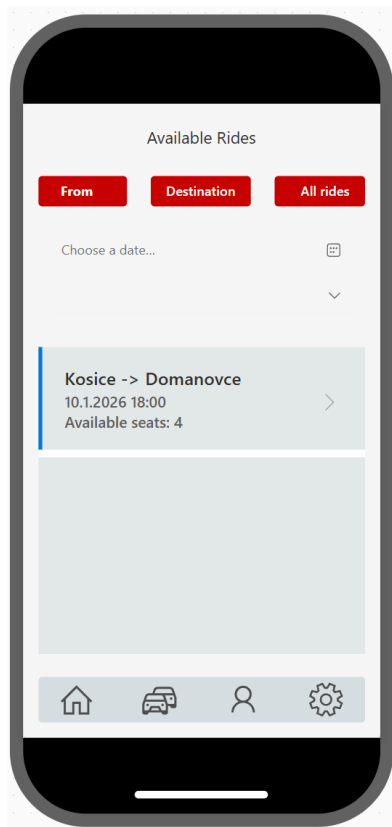
⛰ Architecture

The application is built using Microsoft Power Apps and is connected to an existing internal Magna database, from which it retrieves and manages relevant data.

📋 Features

Magna employees are able to create or join carpool rides by defining departure time, location, destination, and available seats. The application also features a live chat for all ride participants.

☑ Easy to use

Rides can be created in just a few clicks and are instantly visible to all users. The ride creator can easily accept or decline requests from other users who want to join.

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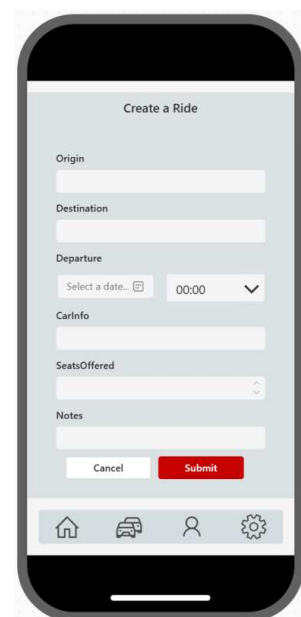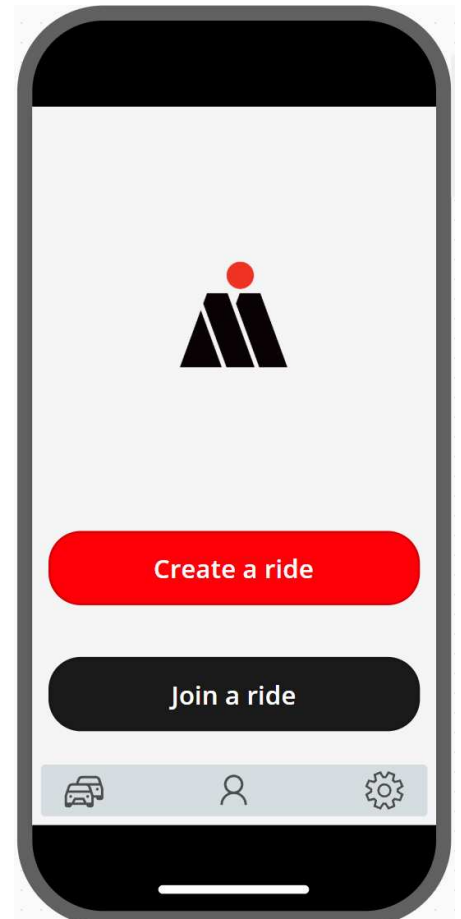
53

IBM

ParkHood

"Share Your Spot, Help Your Hood"

Company mentors: Petra Jankurová, Patrik Toth, Patrik Villant.
KEMT mentor: doc. Ing. Stanislav Ondáš, PhD.

Mykyta Makhorin
Tetiana Mohorian
Artem Skrypnyk
Anfisa Konycheva
Polina Istomina

Problem Description

Urban neighborhoods struggle with limited parking availability, while many private parking spots remain unused.

Solution

ParkHood enables residents to share unused private parking spots and allows drivers to easily reserve them via a mobile application.

Key Features

- Local parking management
- Spot registration
- Custom availability

- Fast reservations
- AI smart assistant
- Bilingual support (EN / SK)
- Dark & light mode

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54

AT&T
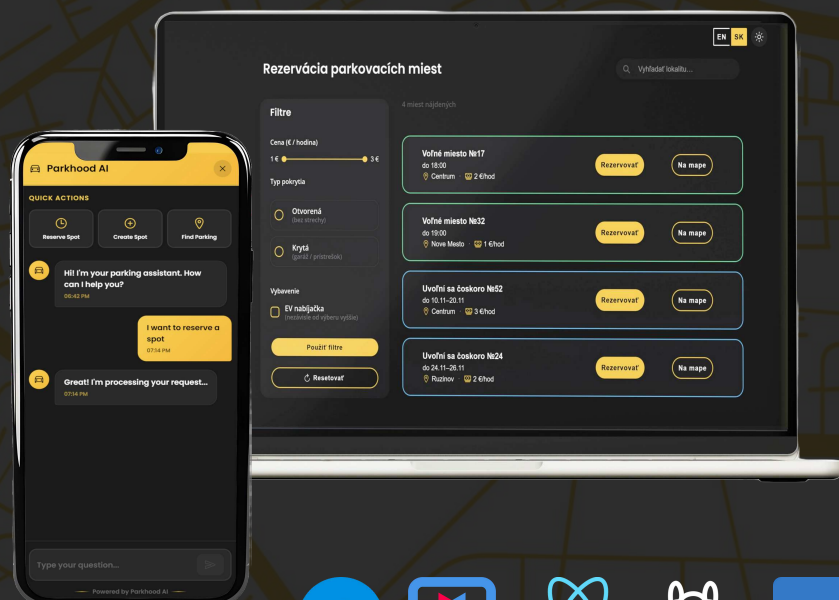
Bookme (Book My Room)

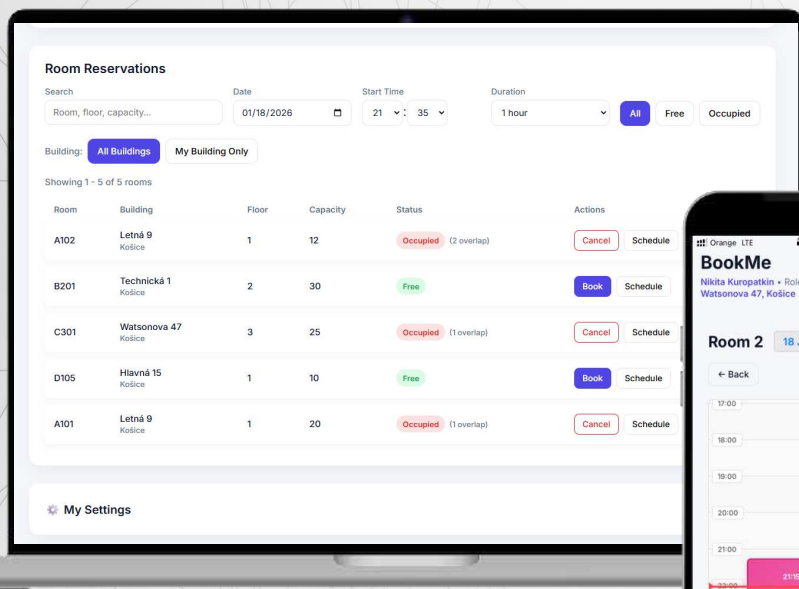**Mentoring Firm: AT&T Global Network Services Slovakia, s.r.o**

Team: Nikita Kuropatkin, Karolina Polackova, Nikodem Simonak, Juraj Pjescak, Tibor Olearnik

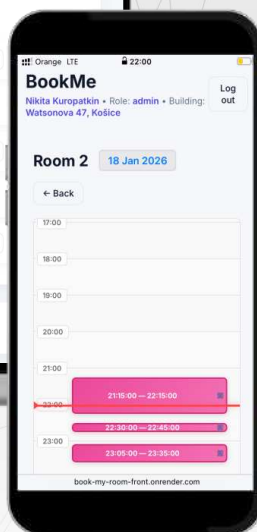**Mentors From Firm :** Tomas Vala, Ondrej Licak, Martin Sujan

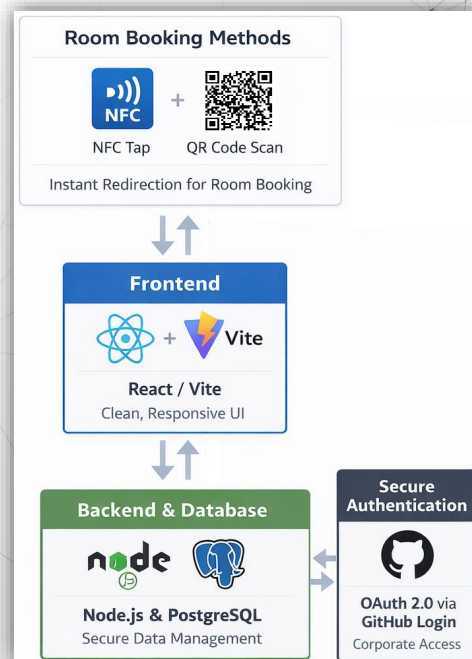**Mentor From University: doc. Ing. Stanislav Ondas, PhD.**

Problem & Goal

- **The Issue**: Old systems cause meeting overlaps and wasted time.
- **Pain Points:** No mobile access, timezone errors, and no way to book on the spot.
- **The Goal:** A fast, secure web app for instant room booking with NFC/QR integration.

Architecture

Room Booking Methods

NFC Tap + QR Code Scan

Instant Redirection for Room Booking

Frontend

React + Vite

React / Vite
Clean, Responsive UI

Backend & Database

node & PostgreSQL

Node.js & PostgreSQL
Secure Data Management

Secure Authentication

OAuth 2.0 via GitHub Login
Corporate Access

Key Features

Roles:
- **Admin:** Manage rooms, users, and all bookings.
- **Employee:** Book rooms and manage personal schedules.
- **Viewer:** Check real-time room availability.

On-Spot Booking: Scan QR/NFC next to any door for instant access.

Smart Search: Filter rooms by building, name, or address.

Evaluation & Status

Current Status: Fully functional MVP currently undergoing live corporate testing.

Impact: Eliminates scheduling errors and significantly speeds up the booking process.

Client Feedback: "The MVP has met our expectations; it is currently being adapted to our environment with further development planned." - Mentors at AT&T

KPS

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AUTOMATIC ZOZZSO

SIEMENS Healthineers

AUTOMATIC ZOZZSO

STREAMLINING EMS WORK.

PROBLEM

Filling out the ZoZZSo form manually is a time-consuming administrative burden for ambulance crews. This process is prone to errors and diverts critical attention away from patient care.

SOLUTION

Our web application digitizes and simplifies the ZoZZSo form. It allows paramedics to use voice dictation for faster, more accurate documentation, enabling them to focus entirely on the patient.

FEATURES

The app provides hands-free voice transcription and smart fields with auto-suggestions to ensure accuracy. All records are securely stored in the cloud, offering instant access on any device.

React · node JS · MongoDB · Whisper

KEMT · LIVE IT PROJECTS · investechskills Košice 2026

CityPimpCheck

Company: Neuronom s.r.o. Dominik Tkacik, Jan Tkacik
Students: Ervin Minabiliev, Ivan Tkachenko, Pavlo Tverdyi,
Artem Yatsenko, Nikita Zubko.
University mentor: doc. Ing. Stanislav Ondáš, PhD., Ing. Zuzana Dubajová

NEURONUM
EST. 2024

⚠ Problem

- Unstructured data on public procurement
- Manual analysis is slow
- Difficulty in assessing the economic efficiency of procurement

Key Functions
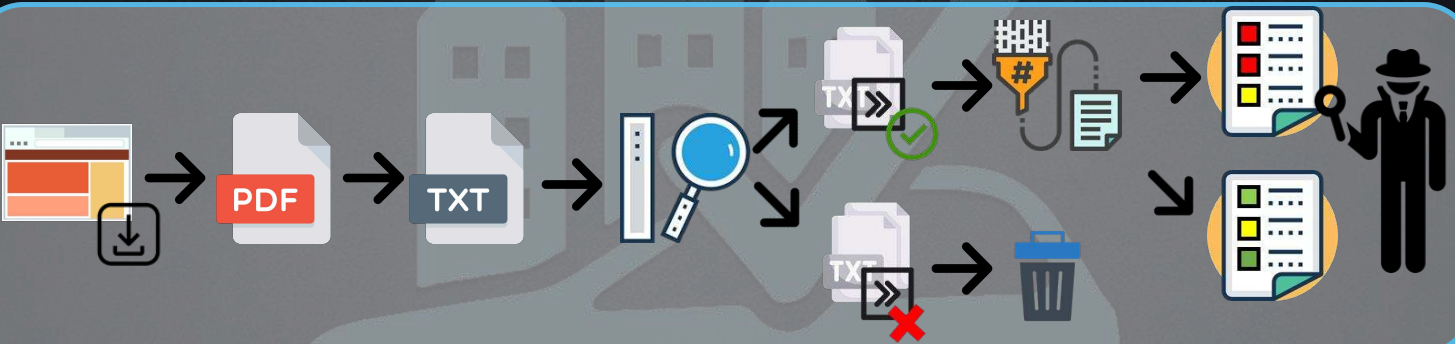
- PDF processing
- File classification (LLM + classifier)
- Vehicle data extraction
- Economic efficiency evaluation

System Pipeline

Solution

CityPimpCheck is an automated analytical system for processing public PDFs, identifying vehicle procurements with LLMs, extracting vehicle data, and evaluating procurement efficiency.

Impact

- Reduces analysis time
- Identifies inefficient public spending
- Increases transparency of public funds

KPS

LIVE IT PROJECTS

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Košice 2026

VISMA

Lumina Spolu

Students: Bc. Leonard Silvester Ujlaki, Bc. Lukáš Zachar, Bc. Kristián Turták, Bc. Branislav Gabčo, Bc. Illiia Lavkai

Company: Visma Labs Slovakia, Patrik Sliacky
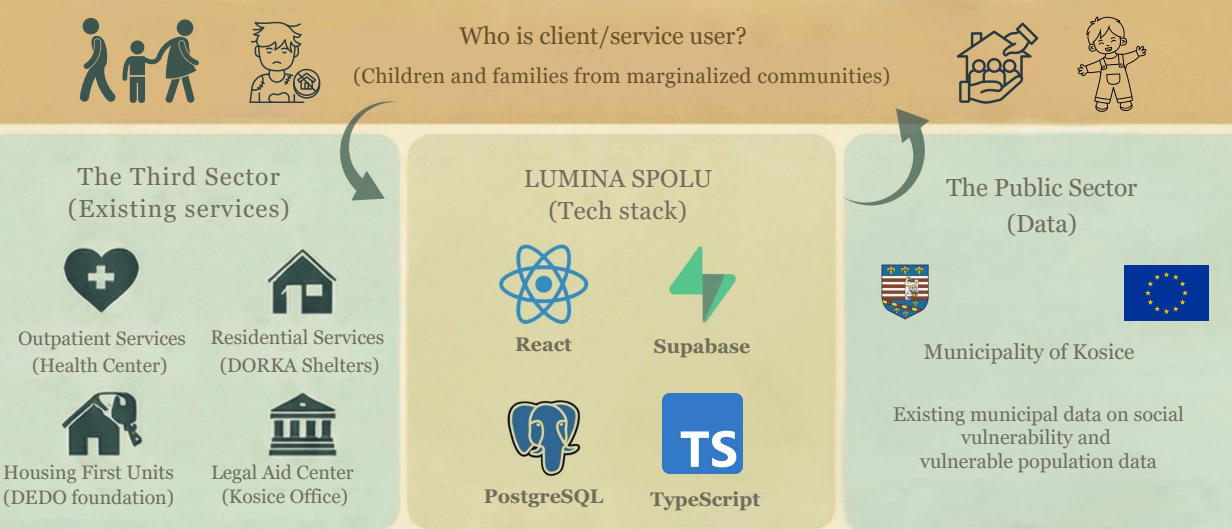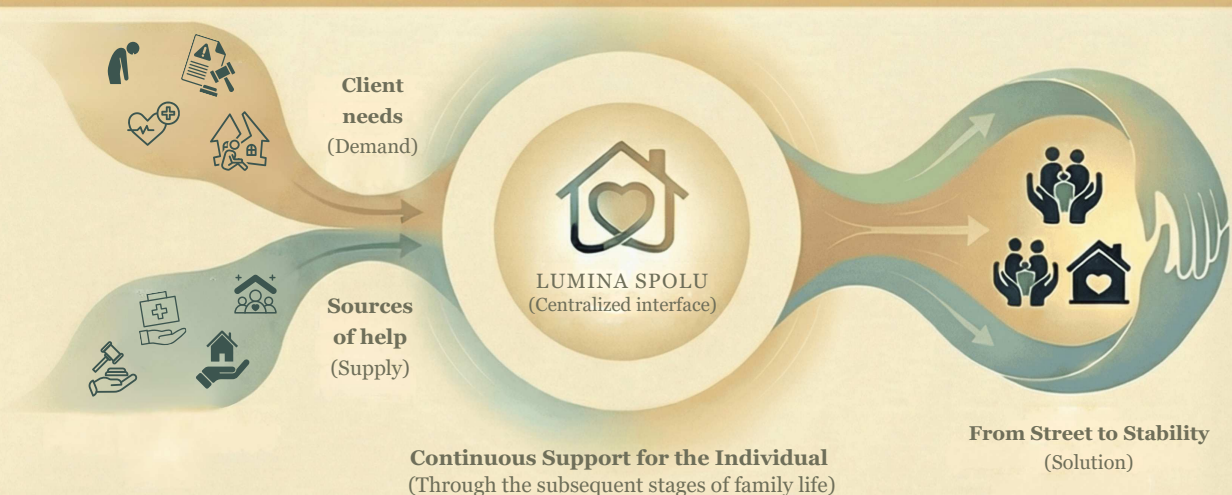University mentor: doc. Ing. Stanislav Ondáš, PhD.

Digital ecosystem for social care and services

Problem: homeless children and families lost in the system of social care services
Solution: an interface connecting municipal data with social workers and organizations providing social housing, medical assistance, legal and psychological counseling.

Who is client/service user?
(Children and families from marginalized communities)

The Third Sector
(Existing services)

Outpatient Services
(Health Center)

Residential Services
(DORKA Shelters)

Housing First Units
(DEDO foundation)

Legal Aid Center
(Kosice Office)

LUMINA SPOLU
(Tech stack)

React

Supabase

PostgreSQL

TypeScript

The Public Sector
(Data)

Municipality of Kosice

Existing municipal data on social vulnerability and vulnerable population data

FUTURE ASSISTANCE DELIVERY MAPPING

Client needs
(Demand)

Sources of help
(Supply)

LUMINA SPOLU
(Centralized interface)

From Street to Stability
(Solution)

Continuous Support for the Individual
(Through the subsequent stages of family life)

FUTURE DATA FLOW MAPPING

Health Center

Dorka Shelter

Municipality of Kosice

DEDO foundation

LUMINA SPOLU

Legal Aid Center

Housing First Units
(various locations)

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58.

Solar website for a botanical garden

Bc. Sabol, Bc. Styavina, Bc. Ochotnícky, Bc. Zsolt, Bc. Migaš
Digital Health Slovakia
Michal Juhás   doc. Ing. Stanislav Ondáš, PhD.

DIGITAL HEALTH SLOVAKIA

BAEXEM ARBORETUM

Solar powered Website

Low-energy web ecosystem hosted on a solar server. A solution blending 60s traditions of botanical collection with modern digital sustainability.A website that lives and evolves in harmony with nature.
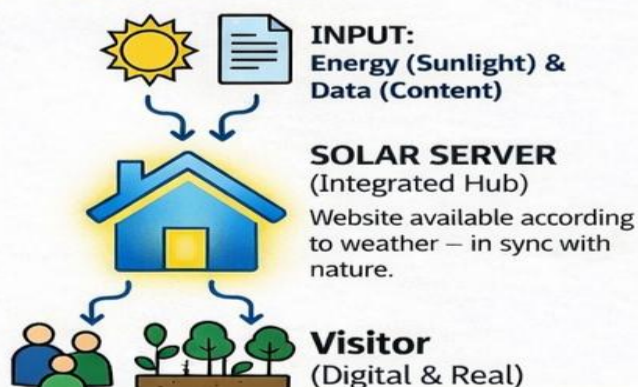
NATURE HISTORY (History & Collection)
- **Established:** 1968, currently revived.
- **Live Collection:** 1600+ plants, 500–species.
- **Biodiversity:** Supports birds, insects & rare speecies.

TECHNICAL INFRASTRUCTURE (Tech Stack)
Hardware: Raspberry Pi
Power Source: 100% Solar Panel + Battery.
Data Storage: Photography, Archive
Optimization: Minimalistic Code.

SOLAR SERVER AS CENTRAL HUB
(Input & Output Flow)

INPUT:
Energy (Sunlight) & Data (Content)

SOLAR SERVER
(Integrated Hub)
Website available according to weather — in sync with nature.

Visitor
(Digital & Real)

ENERGY & FUNCTION FLOW VISUALIZATION

Sun

Solar Panel

Battery

Raspberry Pi
(Web Server)

E-Shop
Products

Booking
Calendar

Gallery
Nature Images
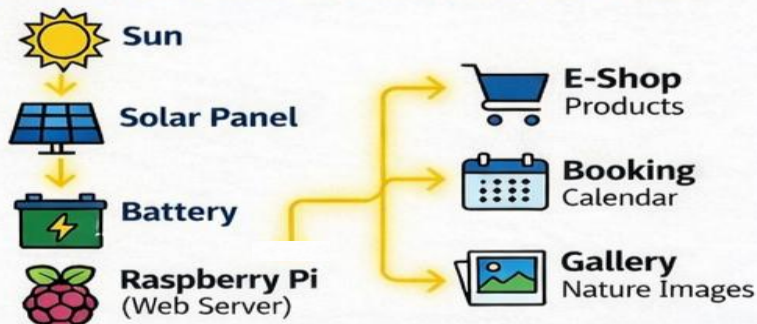
CONCLUSION: PARADIGM SHIFT: From physical to digital reality, Baexem Arboretum: A place for study, relaxation, and inspiration in the digital age.

KEMT WWW

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59

ii team

tvoríme srdcom

F E I U COMMUNITY

Web platform for community learning

Students: Branislav Kačmarik, Peter Danko, Maroš Pavlinec, Dávid Andrišov

Company: iiTeam s.r.o. Ing.Ľuboš Minčák

University mentor : doc. Ing. Stanislav Ondáš, PhD.

Problem Description

Teachers often use fragmented tools (worksheets, textbooks, videos) for lesson preparation. Lesson planning is time-consuming and lacks structure and time control. There is no unified platform for planning, running, and managing lessons in real time. Teachers need better tools to organize activities and efficiently manage classroom time.

Solution Features

Secure teacher login with school, class, and subject selection. Activity-based lesson planning for each subject and topic. Time allocation for individual activities within a lesson. Built-in lesson timer with pause, resume, and skip options. Sequential execution of activities during the lesson. Timetable view with daily schedule, calendar, messages, and current time.

Support for multiple activity types

presentations, interactive games, flashcards, and educational videos.

Technologies & Project Status Technologies

Frontend: React.js, Backend: Django, Database: PostgreSQL, Architecture: Modular and scalable Language, support: English / Slovak ready Project, Status: Open-source educational platform Designed for future expansion to additional subjects and modules

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60
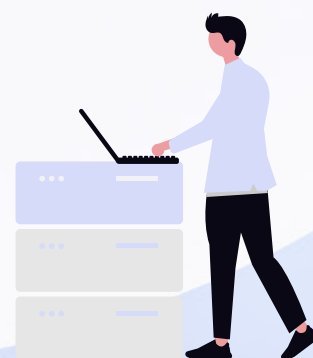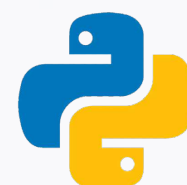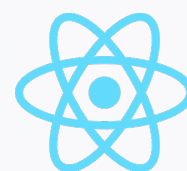
Bubáci do vrecka

Students: Yehor Verhun, Artem Korotkyy, Vladyslav Yanchenko, Stepan Cherevko, Peter Kobeľák
Company: MŠ S láskou, o.z., Miriam Kulíková
University mentor: Ing. Stanislav Ondáš, PhD.

61 Annotate service

Tím : Simon Kalinák, Matúš Kundracik, Štefan Malik, Matúš Kačmár
Mentori : RNDr.Peter Gurský,PhD., RNDr.Dávid Varga

Problematika

V súčasnej dobe súdnictvo a právny sektor generujú obrovské množstvo dát vo forme súdnych rozhodnutí a rozsudkov. Tieto dokumenty sú však dostupné prevažne ako neštruktúrovaný text (PDF, Word, prostý text), ktorý je pre počítačové spracovanie a pokročilú analytiku "neviditeľný". Hlavné problémy súčasného stavu sú:

Absencia štruktúry: Texty neobsahujú metadáta v strojovo čitateľnej forme.

Absencia centrálnej platformy: Proces anotácie dát a riadenie úloh prebiehajú nesystémovo. Bez jednotného nástroja na koordináciu dochádza k neprehľadnosti v pracovných tokoch, zbytočnému opakovaniu rovnakých úkonov a nezriedka aj k strate dôležitých informácií.

Nemožnosť kontroly kvality: Pri manuálnom delení práce je ťažké zabezpečiť, aby jeden dokument skontrolovali nezávisle dvaja ľudia, čo je kľúčové pre elimináciu ľudských chýb.

Bezpečnostné riziko: Citlivé súdne dokumenty by nemali byť posielané nezabezpečenými kanálmi bez riadenia prístupov.

Riešenie problematiky

Ako odpoveď na tieto problémy sme vyvinuli robustnú **webovú anotačnú platformu** postavenú na architektúre Client-Server (Java Spring Boot + Angular), ktorá digitalizuje a centralizuje celý proces tvorby datasetov.
Naše riešenie pozostáva z týchto krokov:

Centralizácia a Digitalizácia

Inteligentná distribúcia práce

Systém automatizovane prideľuje tisíce dokumentov medzi členov tímu na základe vopred definovaných pravidiel:

Riadený prístup k citlivým dátam
Ergonomické pracovné prostredie
Optimalizácia záťaže
Viacstupňová verifikácia

Benefity nášho projektu v praxi

Nasadenie tohto systému prináša hmatateľné výhody pre organizácie spracúvajúce právne texty:

Úspora času a nákladov

Automatizácia prideľovania úloh, eliminuje hodiny manuálnej práce manažérov. Anotátori nestrácajú čas hľadaním súborov, ale okamžite vidia svoje pridelené úlohy.

Škálovateľnosť

Systém je navrhnutý tak, aby zvládol správu desiatok datasetov a tisícov dokumentov naraz bez straty prehľadnosti.

Bezpečnosť a Auditovateľnosť

V každom momente je jasné, kto, kedy a ako upravil konkrétny dokument. Citlivé dáta neopúšťajú zabezpečený server.

Flexibilita

Systém nie je viazaný len na súdne rozhodnutia – vďaka generickému návrhu backendu je možné ho v budúcnosti použiť na anotáciu akýchkoľvek textových dokumentov

An Open-Source Kindergarten Management System (EduPage Alternative)

Alžbeta Andrejková, Martin Hlavatý, Martin Rusnák, Adam Bruno Bálint, Adam Macko

Ing. Tomáš Lörinc
FPT Slovakia

RNDr. Peter Gurský PhD.
Institute of Computer Science UPJS

Modern web-based solution designed for the needs of kindergarten

Open-source

Secure

User-friendly

Our video

👥 Parents

One place for everything
Daily menus, meal management, and payments in one clear interface.

Easy meal cancellation
Unsubscribe your child from meals with a single click — no calls needed.

Transparent payments
Automatic calculation of meal fees with clear payment history.

Safe access without passwords
Secure one-time login links sent directly to your email.

Stay connected
Direct communication with teachers through an integrated chat.

👩‍🏫 Teachers

Simple attendance tracking
Daily attendance records with easy report generation.

Class & parent management
Add children, manage classes, and onboard parents with minimal effort.

Share moments safely
Upload photos from school activities with automatic AI face blurring.

Less administration, more teaching
Designed to reduce manual work and simplify everyday tasks.

Meal & tuition fee management
Easily enter and manage meal and tuition payments for each child.

Payments

Attendance

Lunch checkout

Next.js — **IDSK 3 design** — **Node.js** — **JWT authentication** — **PostgreSQL** — **Prisma Postgres**

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63

ZvážTo – Smart Food Recognition App

Kevin Martin Lakota, Andrii Popovych, Lukáš Bojačko, Martin Malik, Gulnura Kapanova

Pavol Jozef Šafárik University in Košice   RNDr. Viliam Kačala, PhD.
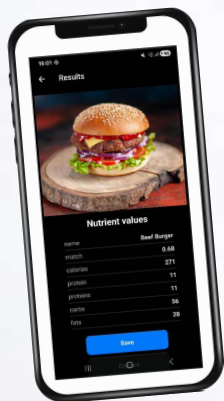
Let's be honest, nobody enjoys writing down every single meal.
Manual calorie tracking is slow, annoying, and easy to forget.
Most people stop after a few days.
That's why we created a fast, simple, and automated solution.

App Architecture

- Mobile client captures meal photo
- REST API upload to backend
- AI inference service: food detection + classification
- Nutrition estimator maps food
- Response returned as JSON to the client
- Persisted to DB

Main features

- Food recognition using AI
- Automatic estimation of nutritional values
- Minimal user interaction
- Meal history tracking
- Daily nutritional summaries
- Calendar-based food logging

How it works ??

- User takes a photo of a meal
- Image is uploaded to the server
- AI analyzes the food
- Nutritional values are calculated
- Results are shown to the user
- Meal is saved to calendar
- Daily stats are updated

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64

ReWear

Nicol Fedurcová, Daniela Pillárová, Roland Marek Rak,
Alica Priščáková, Terézia Kurimská
Univerzita Pavla Jozefa Šafárika

Viktor Pristáš

The fashion industry produces enormous amounts of waste. Most clothes are worn only a few times and then forgotten in closets or thrown away.

Have you ever felt like you have "nothing to wear" despite owning a full closet?

**Share Style.
Not Waste**

Solution For You

ReWear is a platform that allows people to share clothing within trusted communities.

It connects friends, families, and small groups to give clothes a longer life.
Locally, simply and sustainably.

Functionality

- Browsing virtual wardrobes
- Viewing clothing details
- Reserving items
- Creating own wardrobe
- Managing groups

Key Features

- **Digitize**: Your wardrobe in your pocket
- **Trust**: Sharing restricted to friends & family
- **Save $**: Borrow high-end items for free
- **Track**: Organized overview of lent items
- **Sustain**: Style without the textile waste
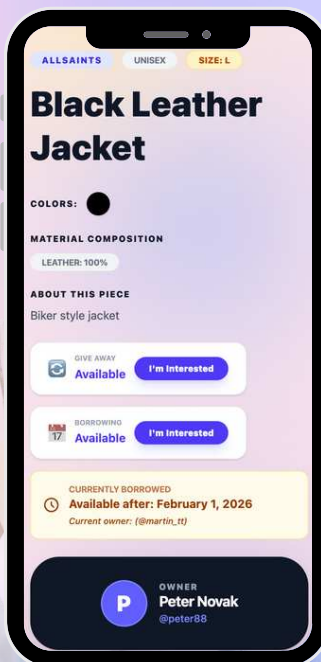
Evaluation

The application allows users to efficiently manage virtual wardrobes and clothing reservations within closed or open communities. The system is designed to be intuitive and easy to use through a web or mobile interface.

65. Vyhľadávač súdnych rozhodnutí

Študenti: Bc. Dávid Hudák, Lukáš Varga, Karolína Krištofová
Mentori: RNDr. Peter Gurský, PhD., RNDr. Dávid Varga
Ústav: Ústav informatiky, Prírodovedecká fakulta UPJŠ Košice

Problematika

- Súdne rozhodnutia sú rozsiahle a neštruktúrované
- Existujúce systémy vyhľadávania sú neprehľadné a málo efektívne
- Vyhľadávanie relevantných rozhodnutí je časovo náročné
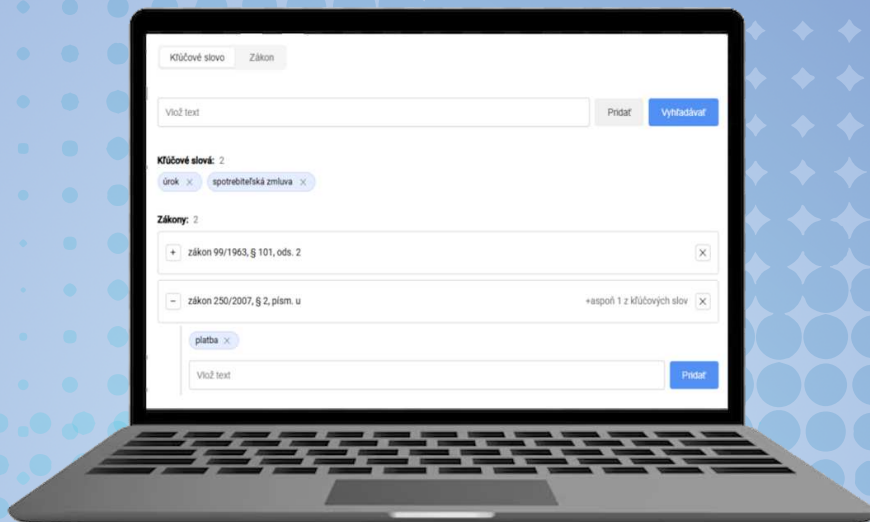
Riešenie

- Webový vyhľadávač pre slovenské súdne rozhodnutia
- Praktické využitie v oblasti práva a právneho vzdelávania
- Podpora výskumu, analýzy a štúdia súdnych rozhodnutí
- Vyhľadávanie podľa kľúčových slov a relevancie výsledkov
- Prehľadné a štruktúrované zobrazenie rozhodnutí v GUI

Zber dát → Extrakcia → Čistenie → Delenie → Ukladanie → Vizualizácia
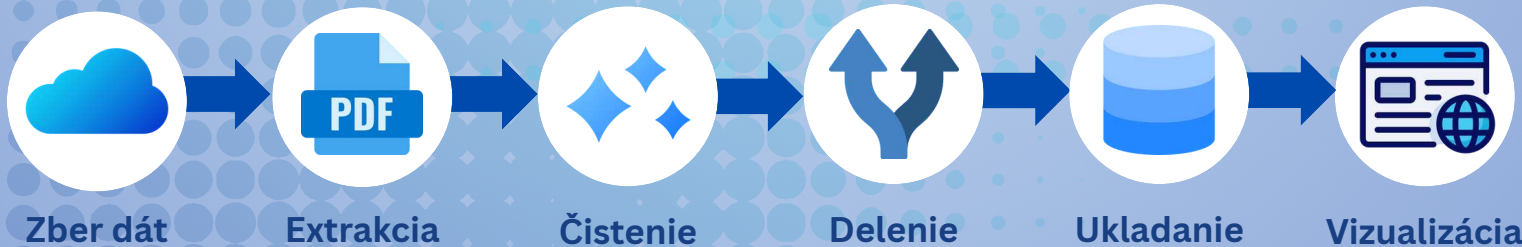
Spracovanie dát

- Asynchrónne spracovanie dát riadené cez RabbitMQ a mikroservisy
- Digitalizácia PDF dokumentov kombináciou extrakcie textu a OCR
- Algoritmická oprava formátovania, spájanie rozdelených slov a normalizácia textu
- Identifikácia štruktúry a delenie rozhodnutí na logické celky
- Detekcia a extrakcia citovaných zákonov a odkazov na súvisiace predpisy

66

Equipment for testing electronics used in automatic sanitary facilities

Bc. Andrii Shumenko, Bc. Dániel Botos, Bc. Volodymyr Denysenko
Ing. Peter Mikluš   SENZOR, s.r.o.   prof. Ing. Alena Pietriková, CSc.

Problem Description

Modern automatic sanitary devices contain microprocessor-based electronics. Failures can cause water leakage, hygiene risks and financial losses. Reliable pre-deployment testing is therefore essential.

Solution Architecture

The solution is based on Siemens Desigo PXC4.E16 PLC. Tested modules communicate via RS485 using Modbus RTU. The system is implemented as a compact testing cabinet.

Key Features

- Configurable I/O
- Modbus RTU diagnostics
- Fault simulation
- Automated test sequences
- BMS compatibility

Usage State

The PLC simulates real operation of sanitary devices, monitors sensor responses and evaluates communication and logic correctness. Test profiles can be changed without hardware modification.

Evaluation

The proposed solution enables efficient and repeatable testing, improves reliability of sanitary electronics and is suitable for development, production and education.

67
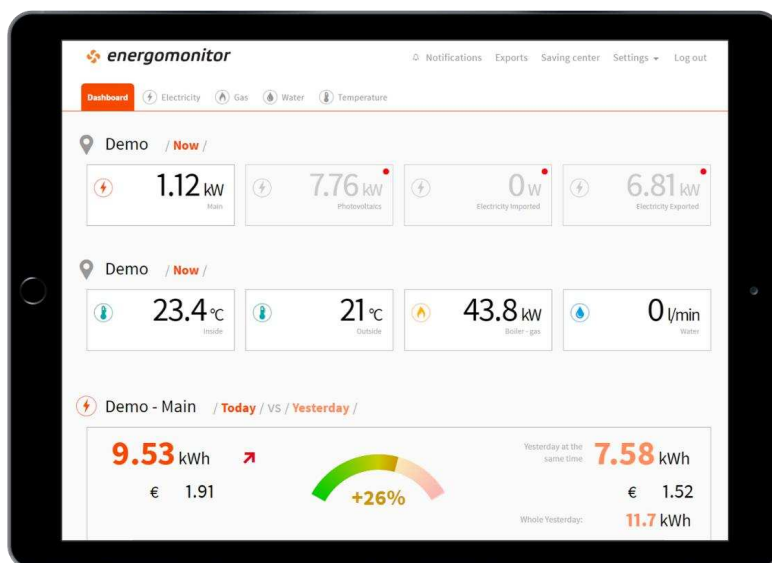
Coating – an unstable process of automated coating application

Bc. Jaroslav Potančok, Bc. Samuel Sleboda, prof. Ing. Alena Pietriková, CSc.
Ing. Tomáš Szombathy, Marelli Kechnec

In the automotive industry, the process of automated application of protective coatings is considered a critical technological operation in the production of electronic modules. The quality of the applied coating directly affects the reliability, service life, and functionality of electronics exposed to moisture, chemicals, vibrations, and temperature variations. Despite a high level of automation, this process remains sensitive to changes in technological parameters and may exhibit signs of instability.
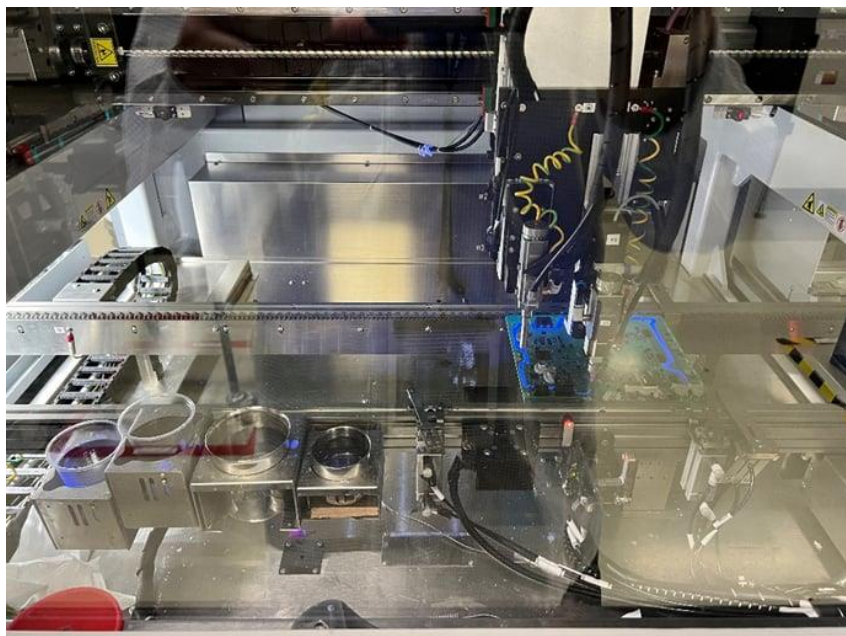
The aim of this work was to analyze the automated coating process of electronic modules at the Marelli manufacturing plant and to identify the main factors that affect process stability and the quality of the applied coating.
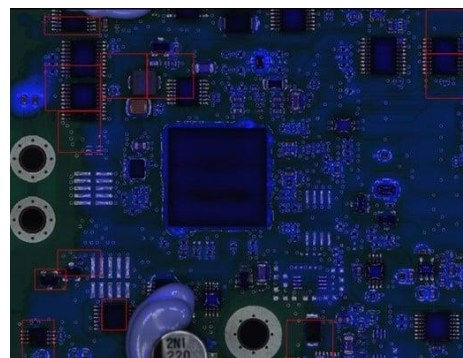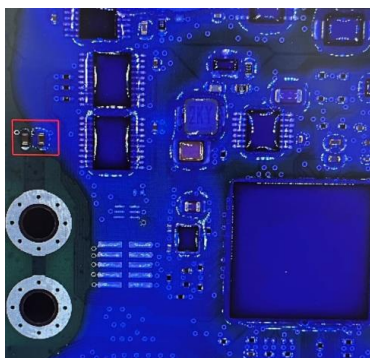
The first image illustrates the automated application process of a protective coating on electronic modules in the automotive industry. The second and third images show insufficient and non-uniform application of the protective coating in a critical area of an electronic module. Such defects can lead to reduced protection of the printed circuit board and an increased risk of failures during operation. The defect detection was performed using an Automatic Coating Inspection (ACI) system, which compares the actual coating condition with a reference coating map.

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68

MARELLI

Solder Paste Printing Stability

Ladislav Filip, Nikolas Kondáš
Ing. Tomáš Szombathy (Marelli Kechnec)
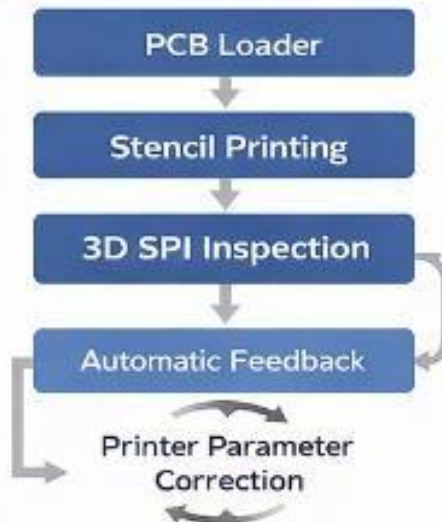prof. Ing. Alena Pietriková, CSc. P (Tuke)

The Challenge

- 60–80% SMT defects originate in solder paste printing:
- Process instability causes:
- Insufficient / excess paste
- bridging between pads
- paste misalignment
- Traditional 2D inspection is insufficient for fine-pitch components

Solution Architecture – 3D SPI Closed Loop

- True 3D measurement of paste volume, height and shape
- Detection of insufficient, excess, bridging defects
- Compensation of PCB warpage (Z-referencing)
- High accuracy for fine-pitch (0402, BGA, CSP) components
- Trend monitoring and statistical process control (SPC)

Key Features

PCB Loader

↓

Stencil Printing

↓

3D SPI Inspection

↓

Automatic Feedback

Printer Parameter Correction

Industrial Use in Marelli SMT Line

- Implemented on Marelli SMT production line.
- 3D SPI placed directly after stencil printer.
- Real-time evaluation of each PCB panel
- Automatic printer feedback (closed-loop control)
- Operator supervision and MES data logging

Solution Architecture – 3D SPI Closed Loop

3D height map of solder paste deposits
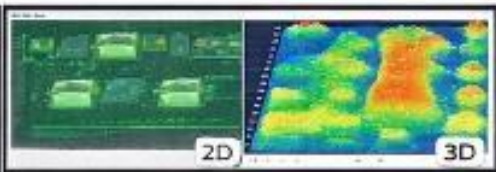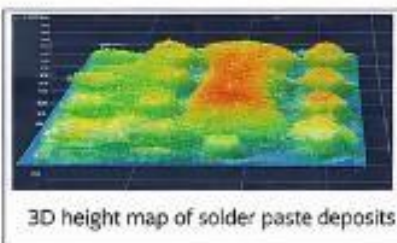
Detected bridging defect by SPI system

Results and Benefits

- Early defect detection before component placement
- Reduction of paste-related defects by > 50 %
- Improved process stability and yield
- Lower rework and scrap rate
- Higher reliability for automotive electronics

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70 Comparative Study of CAD Software for Electronic Design

MinebeaMitsumi
Passion to Create Value through Difference

Students: Michal Madura, Dmytro Babitskyi
Company: MinebeaMitsumi, Ing. Tibor Rovenský, PhD.

Modern electronic devices require printed circuit boards (PCBs). To design PCBs, engineers use CAD/EDA software tools. Today, many different tools exist, and each one has different functions, prices, learning difficulty and workflow.

Because of this, students, hobbyists and professionals often face a problem: **Which CAD tool should they choose for their project?**

The goal of our project is to compare several popular CAD tools for electronic design and show their advantages, disadvantages and typical use cases.

Solution Architecture

Software Selection → Feature Analysis → Testing → Comparison → Evaluation
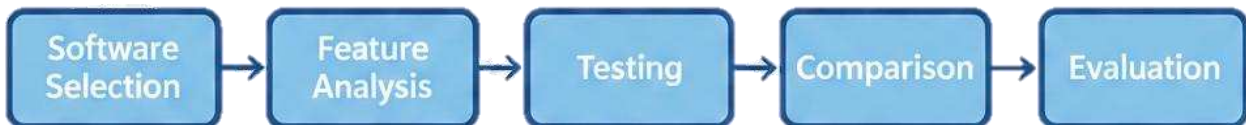
Usage & Target Users
The compared CAD tools are commonly used in:
- University education (students learning PCB design)
- Hobby prototyping (makers and DIY electronics)
- Industry (professional PCB development)

The workflow typically includes:
1. Schematic capture
2. PCB layout and routing
3. 3D visualization
4. Manufacturing documentation
5. PCB fabrication

Features & Capabilities

Feature	Altium Designer	KiCad	Autodesk Eagle
Schematic Capture	✓	✓	✓
PCB Layout	✓	✓	✓
3D View	✓	✓	✓ (Fusion 360)
Autorouting	✓	Limited	Limited
Library Management	Advanced	Manual	Basic
Simulation	✓	External	External
Licensing	Paid	Free	Subscription
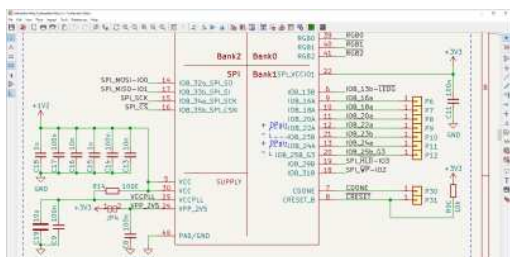
Schematic Capture
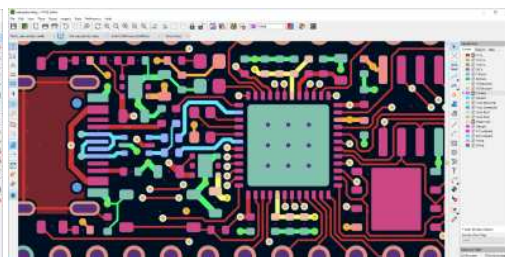
PCB Layout / Routing

3D Board View

Evaluation & Conclusion

Altium Designer is best for professional and complex PCB projects.
KiCad is free, open-source and well suited for students and hobby users.
Eagle fits small projects and Fusion 360 users.
Choice depends on budget and workflow requirements.

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71

Updating the TOMMAT application in the MATAB

Students: Peter Židzik, Tomáš Pataki
Company: IEEE Smart Sensing Solution, Ing Tomáš Girašek
University mentor: prof. Ing. Alena Pietríková CSc.

Automating DVPR report generation by auto-filling unmeasured seat position as **OK** in excel

SBR seat sensor

Motivation & Objective

✓ Manually measuring all seat positions in SBR sensor testing for DVPR reports is slow and repetitve

✓ **Goal:** Automate the TOMMAT system to reduce manual testing effort

✓ **Solution**: Auto-fill missing seat positions as **OK** in Excel based on boundary checks

Solution Architecture

➢ **Input:** Measurements & Criteria

➢ **Core**: CheckPassedFast

➢ **Decision**: Boundary pass checks

➢ **Output**: Comput DVPR in Excel (OK auto-filled)
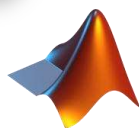
Approach

Measure key seat positions first/last

New algorithm decides **if** boundary values pass

If acceptable, auto-fill missing positions as **OK**

Key Features

✓ Fast boundary check evaluation

✓ Automatic OK filling for unmeasured positions

✓ Direct Excel DVPR write

Results

✓ Faster DVPR creation

✓ Fewer required measurements

✓ Auto-fill missing positions in Excel

Future Work:

• Add position template fo. structured automation

The approach reduces manual measurement effort and speeds up DVPR reporting by auto-completing missing posiiotns as OK when boundary check pass

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72

a sense for **iEE** innovation

WOMS
Workplace Occupancy Monitoring System

Team members: Bc. Pavlo Usatiuk   Bc. Jakub Almáši
Mentor: Ing. Tomáš Girašek, PhD.

PROBLEM

Traditional attendance systems rely either on manual RFID card scanning , causing daily delays and inefficiency, or on camera- and biometric-based solutions that violate privacy and are unacceptable in NDA-restricted environments.

For a small company...
that's more than 8 working days per year

00:00:03:04

One employee loses about 1.25 working hours per year just by scanning an access card...

SOLUTION

We designed an autonomous attendance monitoring system based on sensor fusion and privacy-by-design principles. The system automatically detects employee presence without cameras, biometrics, and manual interaction, while processing all data locally for NDA-compliant operation

NO EMPLOYEE TRAINING REQUIRED

SOLUTION FEATURES

- Time monitoring
- Access control
- Premises monitoring
- Workplace safety

without wasting time and leaking biometric accuracy of 98% (+80H of testing)
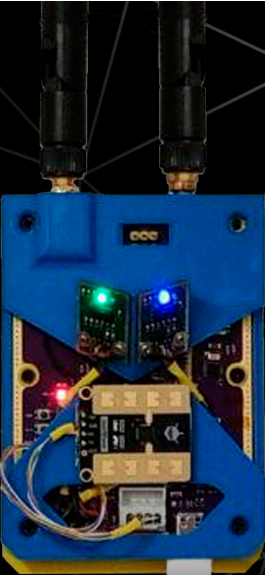
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73

Remote detection of Dynamometer fault conditions

Students: Daniel Kováč, Teo Sokol
Company: Aumovio (Continental), Ing. Peter Mistrik
University mentor: prof. Ing. Alena Pietriková, CSc.

PROBLEM DESCRIPTION

Dynamometer testing involves extreme conditions. Standard monitoring is often dependent on local infrastructure. Our system provides an independent redundant layer to notify operators in real-time via GSM, preventing costly damage.

SOLUTION ARCHITECTURE
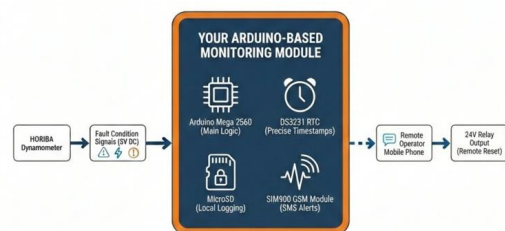
An autonomous unit based on the Arduino Mega 2560.

- Galvanically isolated 5V DC inputs (PC817).
- SIM900 GSM module for SMS alerts.
- DS3231 RTC for precise timestamps.
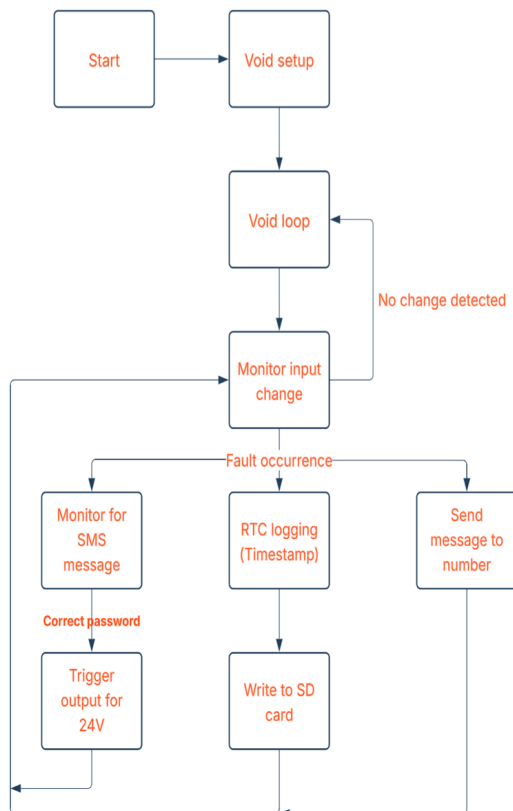- MicroSD for local data logging.

SYSTEM ARCHITECTURE

COMPARISON OF SOLUTIONS

Criteria	Arduino	Raspberry Pi	PLC
Reliability	High (Dedicated)	Medium (OS)	Extreme
Power Use	Very Low	Medium	High
Boot Time	< 1 Second	30-60 s	5~10 s
Unit Cost	Lowest (~50€)	Medium	Very High

PROGRAM LOGIC

STATUS & SYSTEM HMI

The system is currently in the **Functional prototype stage**, verified for reliability.

System HMI: Local LCD Alert & Real-time SMS Notification

EVALUATION

- **Response Time:** Notifications delivered in < 5 seconds.
- **Zero Interference:** Galvanic isolation protects the main system.
- **Cost-Effective:** Professional results at a fraction of PLC costs.
- **Portable:** Compact design for easy deployment.

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74

AUMOVIO

## Design of a Measurement Chain for Brake Noise Measurement

Students: Bc. Jakub Mačuga, Bc. Štefan Priščák, Bc. Tomáš Virba
Company Aumovio: Ing. Marek Janoušek, Ing. Peter Mistrík
University mentor: prof. Ing. Alena Pietríková CSc.

Introduction

- Braking systems generate various undesirable phenomena such as squealing and vibrations.
- Brake noise is a critical comfort parameter that directly influences customer satisfaction.
- Accurate noise and vibration measurements are essential for identifying the sources of these issues.
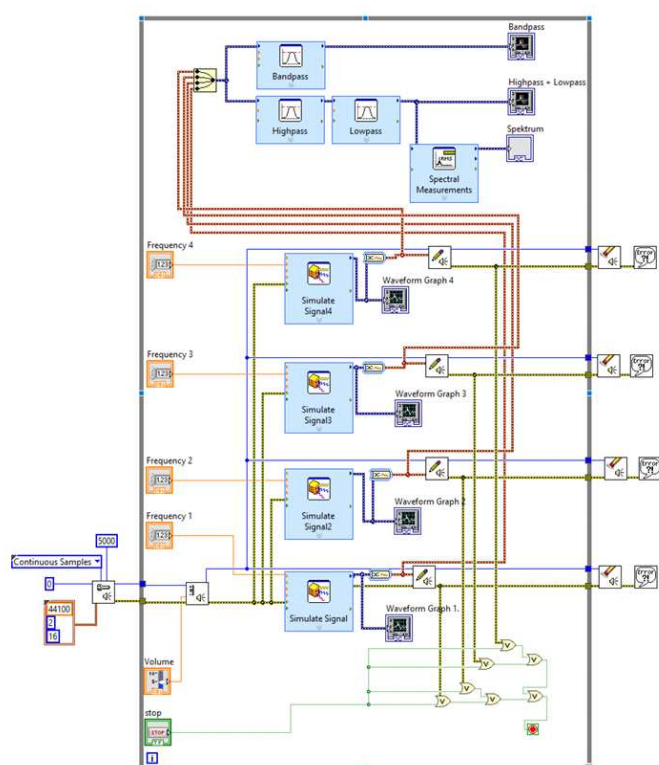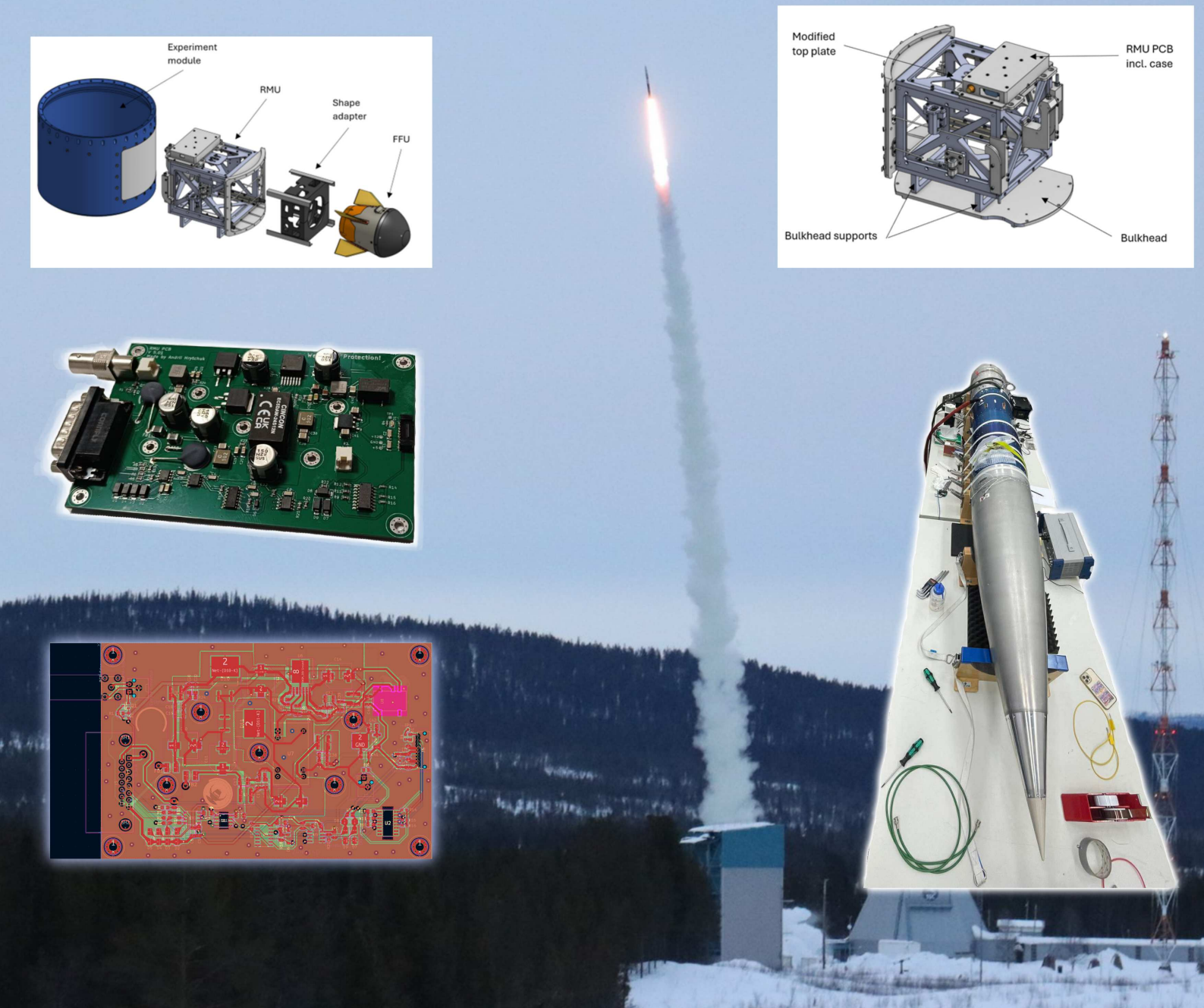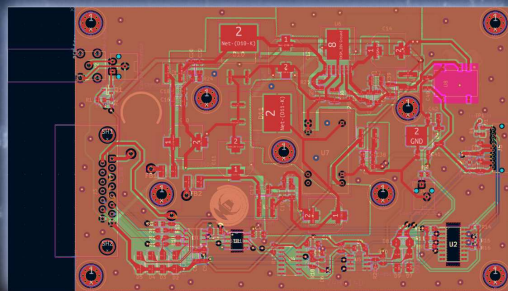

Software and Signal Processing

- The measurement system is implemented in LabVIEW.
- The block diagram illustrates signal flow from generation to analysis.
- Four adjustable simulated signals are processed using frequency filters and spectral analysis.
- All outputs are visualized in real time.

Measurement Chain Components

- **Microphone –** Captures brake noise.
- **Accelerometer –** Measures brake vibrations.
- **DAQ System –** Digitizes sensor signals.
- **System Filter –** Selects relevant frequencies.
- **Signal Amplifier –** Conditions signal levels.

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Vývoj RMU PCB

Bc. Andrii Hrytchuk
Team: HARTS   University mentor: prof. Ing. Alena Pietriková, CSc.

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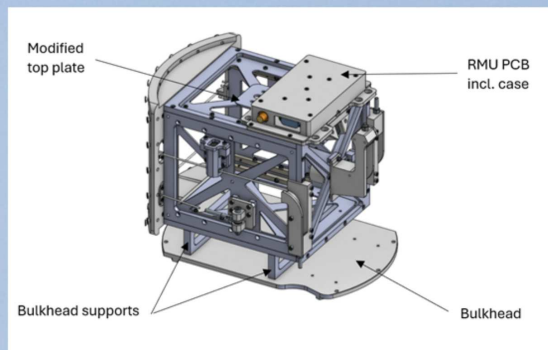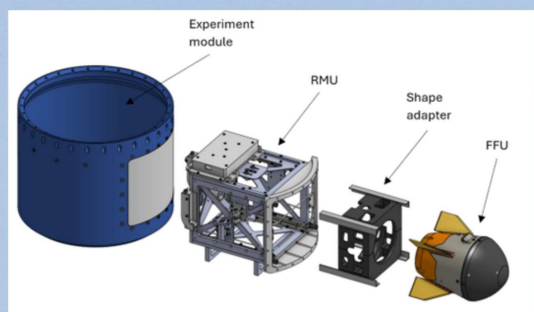
VISUALIZATION OF ENERGY LOSSES DUE TO FAILURES AND NON-PRODUCTION

Team members:
Bc. Serhii Bychok
Bc. Vasilii Vasilchenko

Magna Electronics s.r.o., Kechnec

Team mentors:
Ing. Máté Hireš, PhD|
Ing. Marek Dzacar

Problem

SMT lines consume energy even when production is stopped (standby/ ready mode). Restarting the line also costs energy (warm-up, compressors, stabilization). Main question: for a downtime window T, is it cheaper to shut down or stay on?
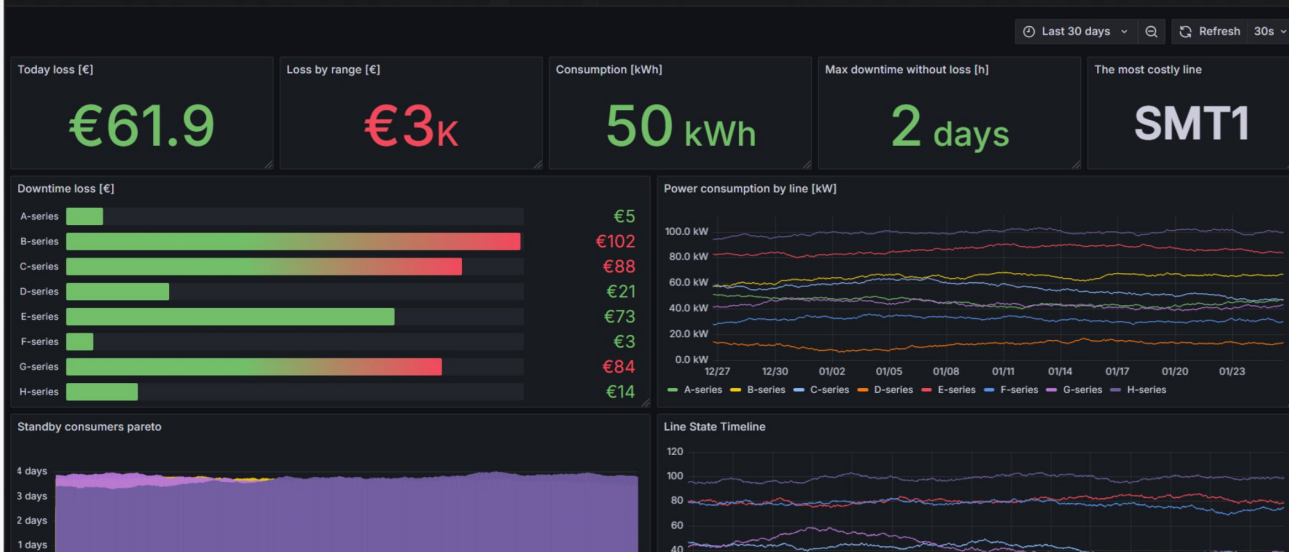
Architecture

Sensors → MQTT Broker → Node-RED logging → SQL DB for logs
SQL DB for logs → Node-RED loss calculation → SQL DB for result
Grafana takes data directly from the SQL DB for result

Evaluation

What the solution enables
Continuous, line-level visibility of energy behavior (idle vs production)
Measurable identification of "waste windows" (high power in downtime)
A quantitative basis for shutdown recommendations

Key Features

Intuitive dashboard
Per-line monitoring (separate time series per SMT line)
Ability to analyze and view historical data
Easy restructuring of internal structure thanks to the Node-RED node system
Separation of layers: raw logs vs calculated/ visualization-ready datasets
Automatic line state classification: OFF / STARTUP / STANDBY / PRODUCTION
Per-line comparisons (SMT1–SMT8)
Telemetry quality monitoring: packet rate, device coverage, missing-data detection

---

🕐 Last 30 days ⌄   🔍   🔄 Refresh   30s ⌄

Today loss [€]	Loss by range [€]	Consumption [kWh]	Max downtime without loss [h]	The most costly line
€61.9	**€3K**	**50 kWh**	**2 days**	**SMT1**

Downtime loss [€]

A-series	€5
B-series	€102
C-series	€88
D-series	€21
E-series	€73
F-series	€3
G-series	€84
H-series	€14

Power consumption by line [kW]

A-series · B-series · C-series · D-series · E-series · F-series · G-series · H-series

Standby consumers pareto

Line State Timeline

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KEM

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78

EcoHome Optimized Appliance Scheduler (EOAS)

Bianca Mihaela Nechita, Elina Ioannou, Ioanna Pataridou, Melani Hasan
AInfinite   Dr. Andreas Constantinides| Dr. Savvas Pericleous

Our proposition

The problem

Inefficient use of self-generated energy that cause:

- Loss of self-produced energy.
- Overloading the grid and using practices that harm the environment.
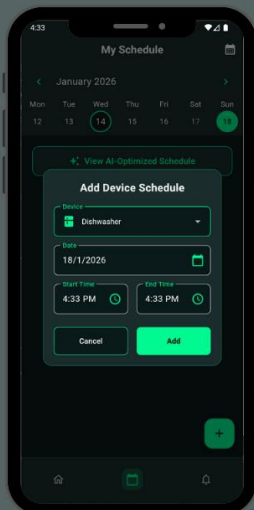- Increased energy costs due to higher demand from the grid.
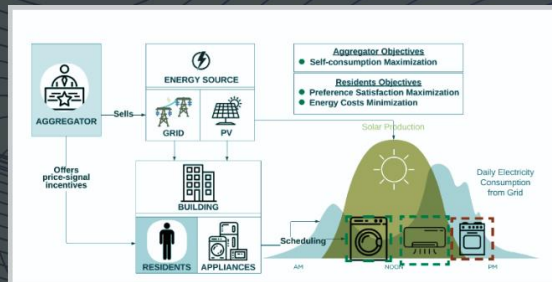
ACTION NEEDED, PLANET AT RISK!
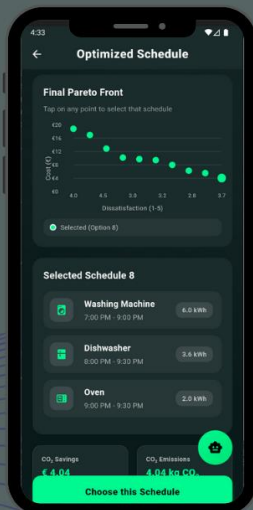
The solution

→ Max Self-consumption

- Minimize energy demand from the grid.
- Reduce reliance on CO_2-emitting fossil sources.
- Maximize utilization of self-produced renewable energy.
- Meet energy needs efficiently.

The ECO Home App

Make your scheduling preferences

Get optimised options via a state-of-the-art algorithm

Review the options with an AI bot

View the benefits of your choices!

What we offer

- ◆ Up to 94.4% Self-consumption
- ◆ Up to 99.1% Costs Reduction
- ◆ Up to 99.5% Satisfaction

- ■ Self-consumption
- ■ Satisfaction
- ■ Costs Reduction
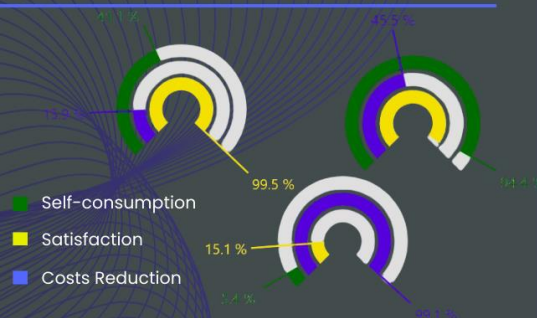
Main features & Technologies

- Flutter — Push Notifications
- Rest-APIs — Smart-Home Scheduling
- LLM — User-Friendly UI/UX & Dashboard

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MDL
Frederick University

79
PANALINE

ReUseNet

Vasilis Chatzipantos, Yoan Petrov
Panaline Ltd Panayiotis Philipou

Dr. Andreas Constantinides
Dr. Savvas Pericleous

ReUseNet: AI-Powered Circular Economy Marketplace & Material Advisor

1. Problem Description

Raw Materials → Production → Consumption → Landfill
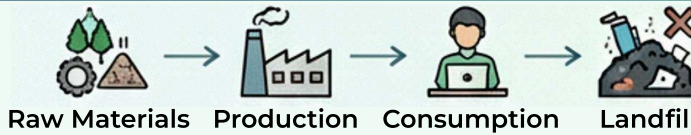
Linear economy creates massive waste & missed opportunities.

2. Solution Architecture

Database (Firebase) ↔ Application (Android) ↔ Gemini (LLM Advisor)

Application (Android) ↔ AR Engine (Visualizer)

3. Solution Features

Marketplace
Easy exchange of surplus goods

AI Material Suggestions
Creative repurposing ideas via LLM

AR Preview
Visualize items in your enviroment

4. Status - How to use it

Provider:
1 Snap & List

User:
2. Browse & Ask AI → **3. Visualise (AR)** → **4. Contact Provider**

5. Screens

ReUseNet
Search for wood, fabric, material...
Filters | Sort
Steel Rod Remnants ... — A batch of leftover st...
Molded Pulp Insert ... — Excess molded pulp i...
Aluminum Sheet Off... — Surplus aluminum sh...
Surplus Biodegradab... — Batch of unused biod...
Market | Map | Listings | Chat | Profile

AI Suggestions
AI Suggestions Generated
Powered by Google Gemini AI

Here are creative and practical suggestions for reusing, repurposing, and recycling your molded pulp inserts:

* **🌱 DIY Seed Starter Trays & Garden Organizers**
  * **Creative Reuse/DIY**: The individual cavities are perfect for starting seeds indoors. Once seedlings are ready, the entire pulp tray can often be planted directly into the ground, biodegrading and...

AR Bench

6. Solution Evaluation

Enviromental impact
Reduces landfill waste, promotes circoularity

Economic Benefits
Saves money, creates values from surplus

Social & Future
inspires creativity, resource efficient communities

80

JUNG VILNIUS

Smart Home Management System (SHMS) Selection Application

Students: Raimondas Paulauskas, Tadas Pleškys,
Domantas Stankus, Donatas Norkus, Vilius Būga.
Company mentor: JUNG Vilnius, Raimundas Skurdenis.
University mentors: Daiva Stanelytė, Birute Rataitė.

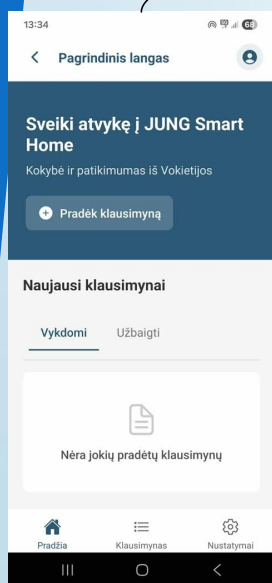## Smart Homes: A Necessity That Is Difficult to Choose

The building sector is one of the largest energy users in the European Union. Smart Home Management Systems (SHMS) support nearly Zero Energy Buildings (nZEB) and renewable energy integration, yet adoption remains slow. Users often lack trust and understanding of energy flows and system compatibility, making smart home decisions difficult and delaying energy-efficient innovation.

- Personalized SHMS recommendations
- Plain-language user interaction
- Compatibility-based evaluation
- Ranked system suggestions
- Focus on comfort, security, and integration

Home tittle screen

eNet SMART HOME

JUNG HOME

KNX

Question's page

Recommended system for your home
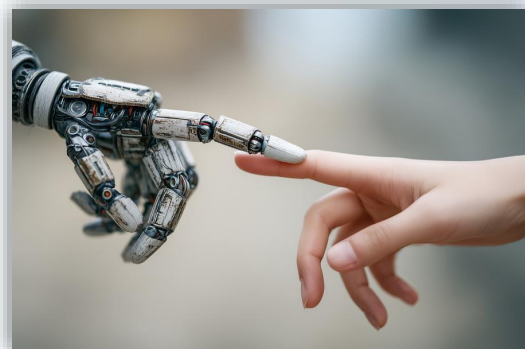
The Solution: Your Personal Pocket Consultant

We provide a mobile application with a web-based control panel that delivers personalized Smart Home Management System (SHMS) proposals based on user needs and constraints.

The system turns complex technical choices into a guided process: users complete a structured questionnaire, the engine checks system compatibility, and the tool produces a ranked recommendation
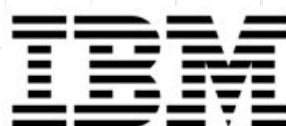
Methodology and User Journey

A simple, step-by-step questionnaire covers 7 distinct technical categories using plain-language questions, allowing users to express requirements without engineering knowledge. The journey progresses from basic living needs to specific expectations, producing accurate recommendations while minimizing complexity and decision fatigue.

Klaipėdos valstybinė kolegija

LIVE IT PROJECTS

investechskills Košice 2026

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