

Problem description / current state of the art

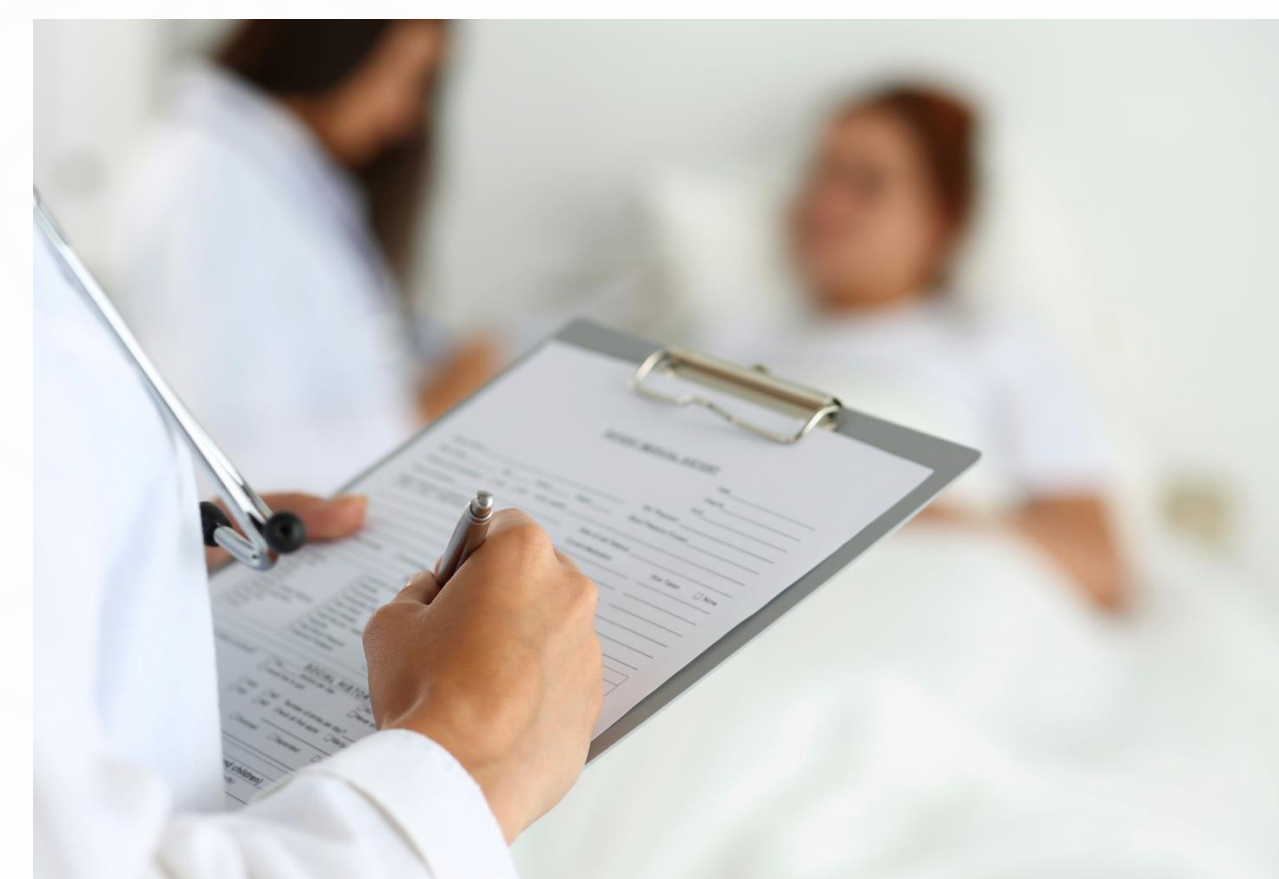
ROOM FOR SURGERY

- before surgery doctor have to make preparations and planning
- patient vitals on LCD displays out off doctor sight
- basic data available (pressure, pulse ...)
- informations are presented from surgery assistants



MEDICAL VISIT

- paper form of medical report
- lack of historical data for better context
- formal report without any visualization



Concept

With help of new technology for mixed reality like Microsoft HoloLens we will be able to improve healthcare. This technology is on its beginning but have a lot of potential.

ROOM FOR SURGERY

- preparation and planning with 3D holograms
- patient vitals directly on lenses of the doctor
- software hints / help for the doctor
- possible collaboration with specialists from a different places
- plans for operations can be replayed during the surgery



MEDICAL VISIT

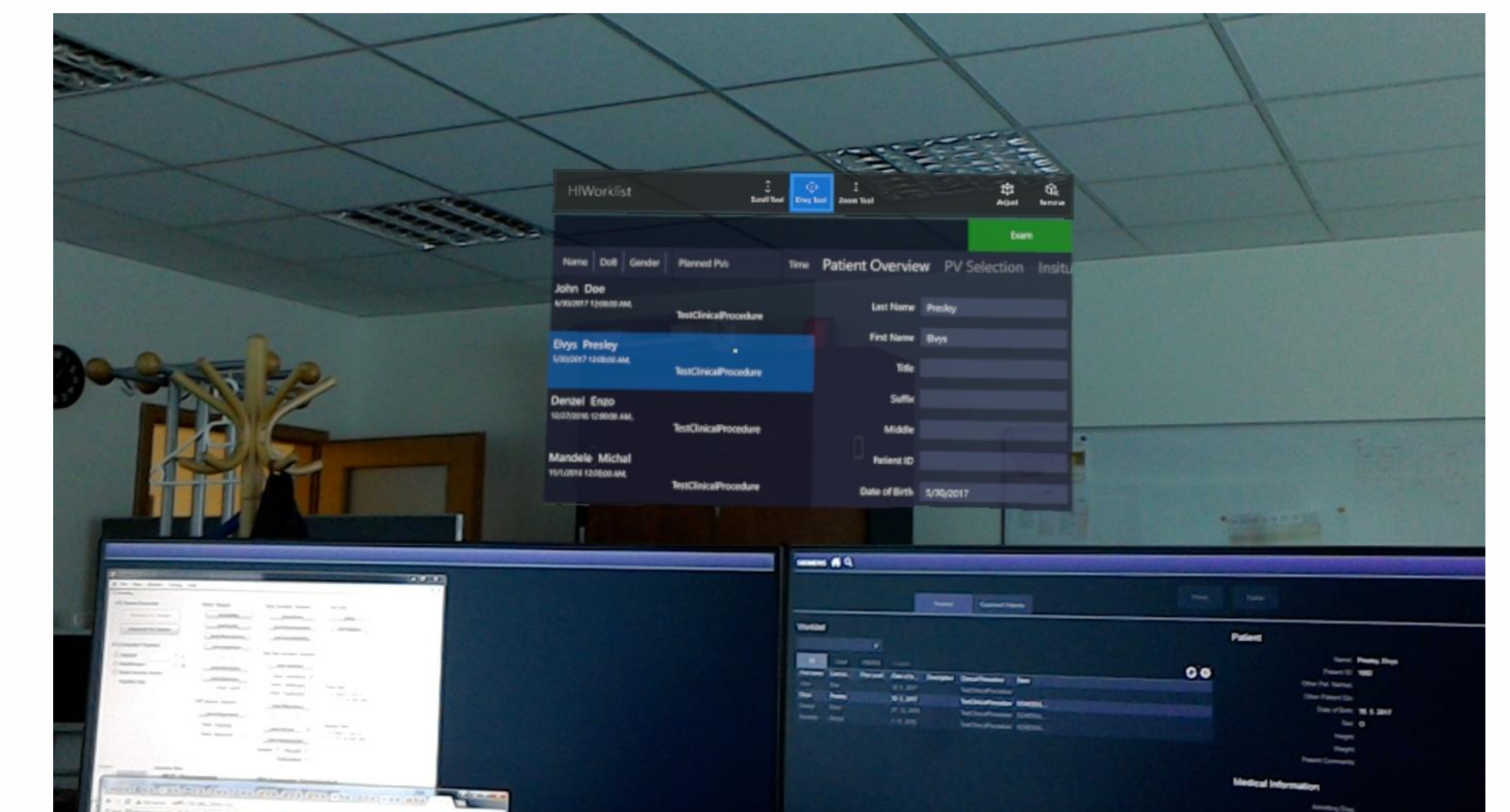
- access to history medical reports
- available X-Ray, CT and MAMO scans
- data displayed in better graphical form
- available collaboration with other specialists



Proposal for solution

WHAT HAVE WE DONE ?

- application with infrastructure for communication between medical devices and Microsoft HoloLens devices
- 2D computed tomography, X-Ray scans and patient data displayed on HoloLens device
- implement functionality directly to the component that takes care of rendering X-Ray / CT / MAMO images

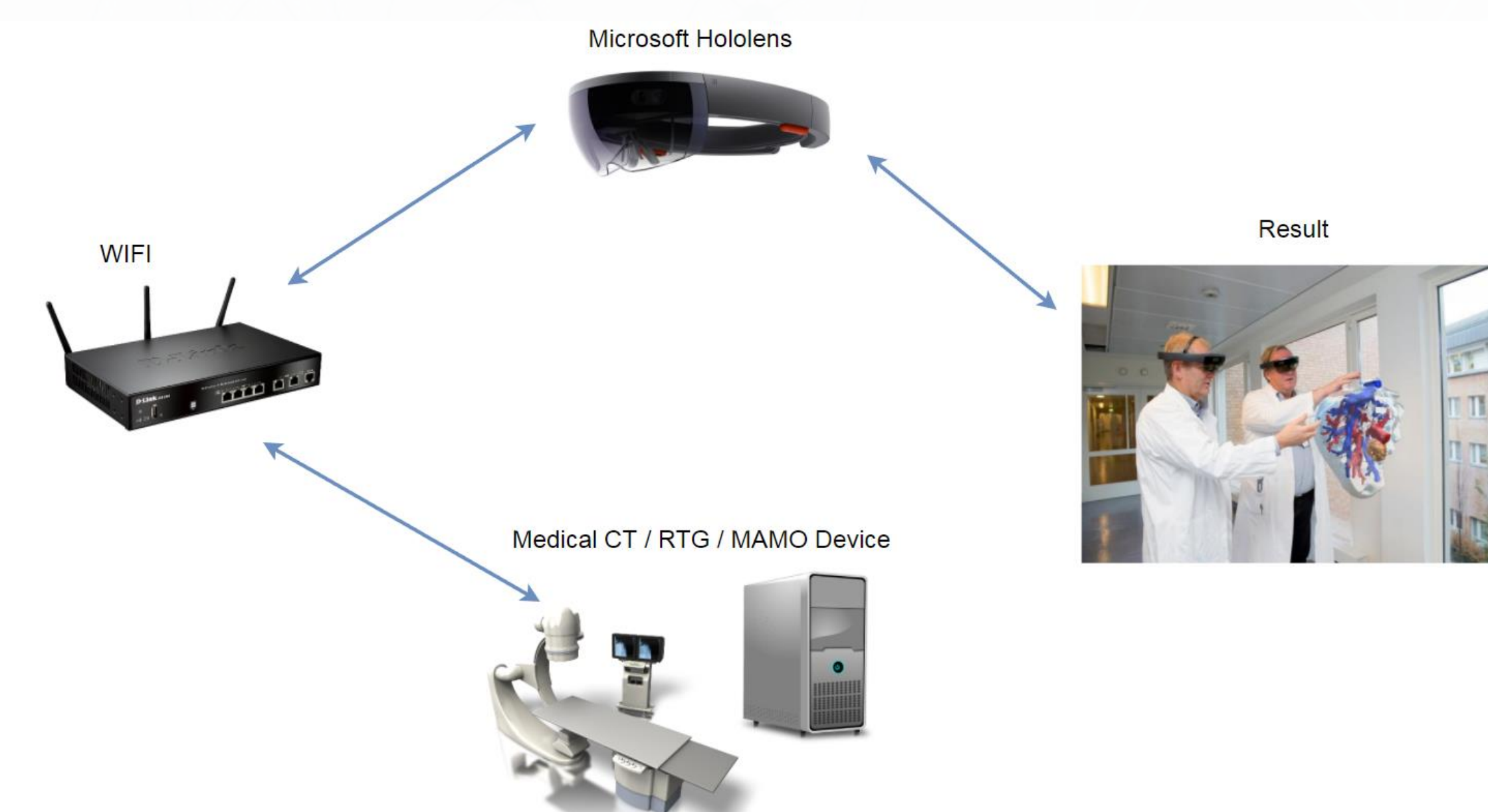


CHALLENGE / GOAL OF THE PROJECT

- show 3D DICOM images on Microsoft HoloLens with best possible quality
- overcome current HoloLens insufficient computing power to process these large images in real time

PROPOSED SOLUTION

- use a stereoscopic technique of showing one scan from different angles for both eyes
- perform processing on another machine and stream images into the HoloLens



Visualization / Achievement



1st. price for project on Technical University of Košice
(<https://kpi.fei.tuke.sk/sk/zive-it-projekty-2017-vyhercovia>)