



Aalto University
School of Science
and Technology

Ceilbot Software

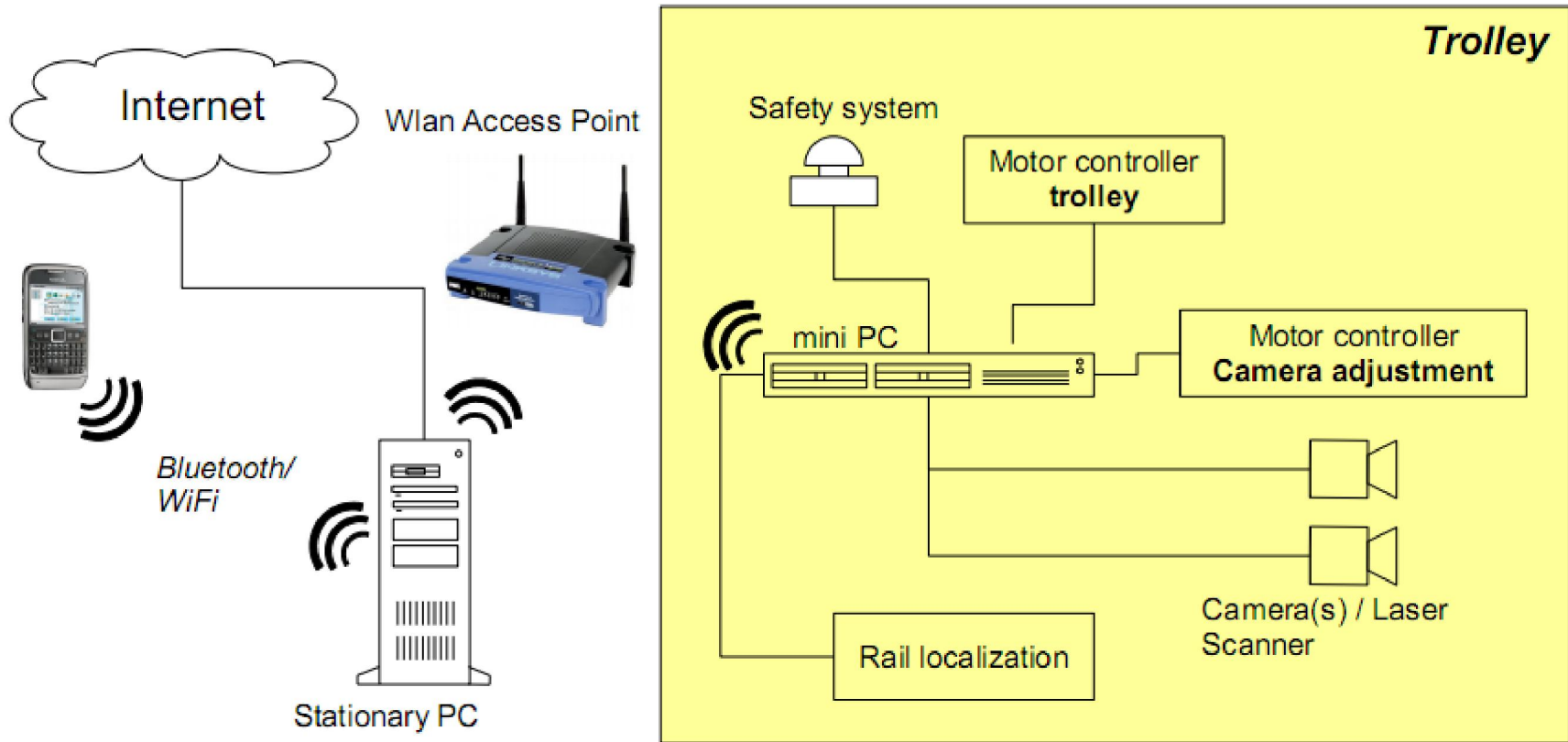
Final Report
Autumn 2010

Klaus Müller

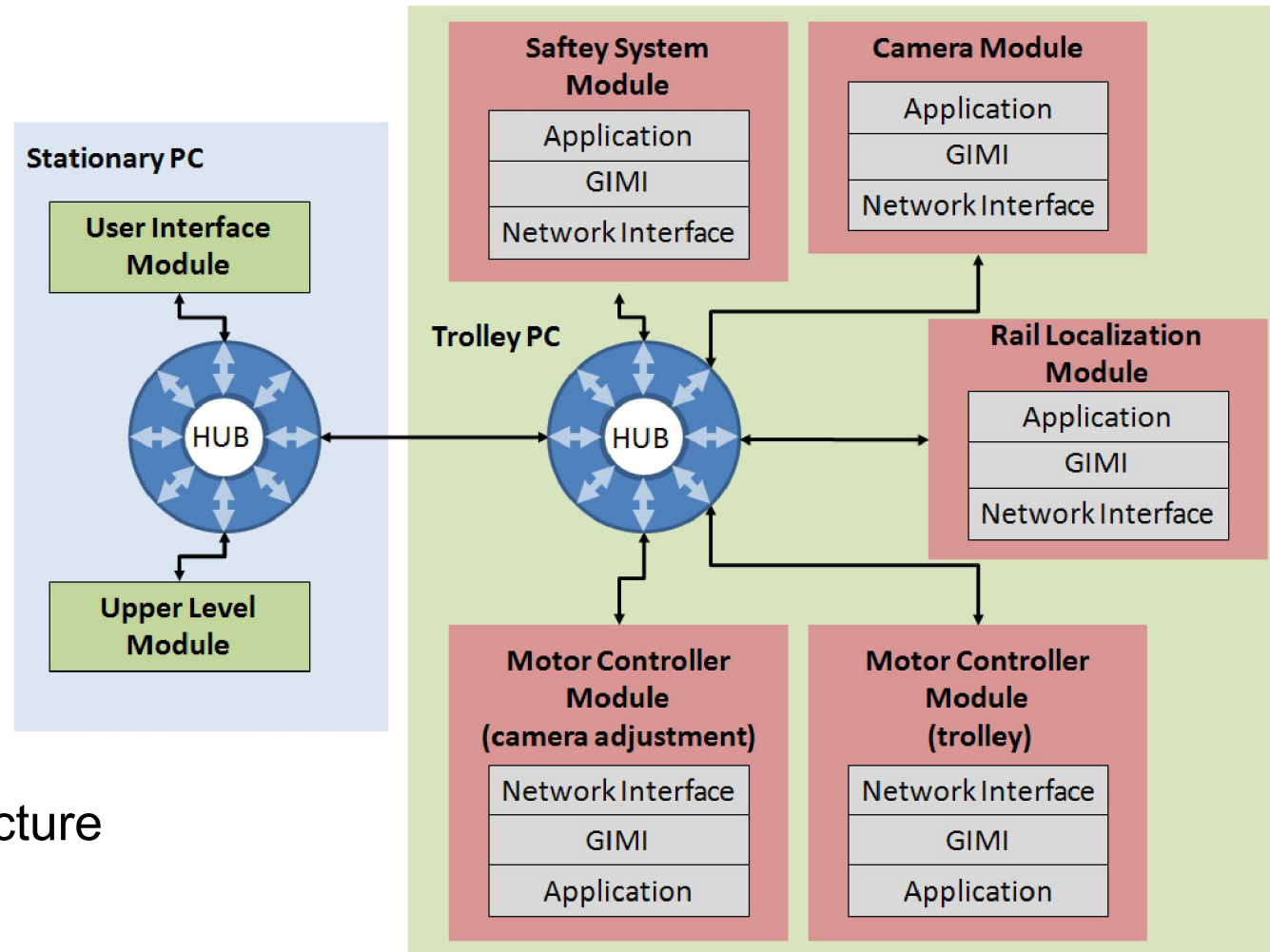
Goals

- **setup a communication infrastructure (GIMnet)**
- **user-machine-communication (Klaus Müller)**
 - implement a basic extendable **user interface**:
control the robot and get a **visualization** of the robots sensor data
- **high level control (Miguel Pérez Cardoso)**

Communication Infrastructure: Robot Architecture



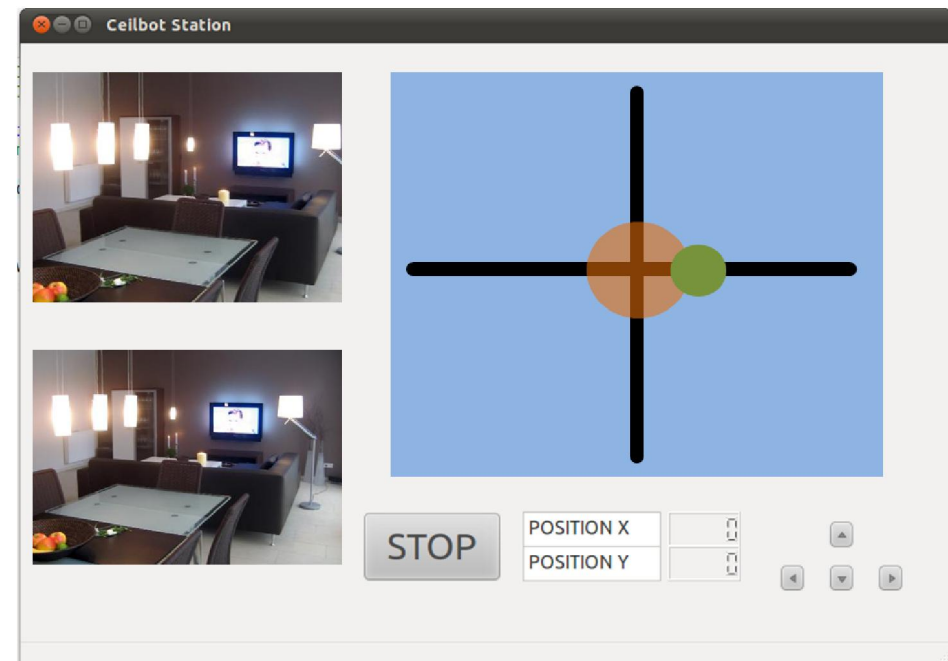
Communication Infrastructure: GIMnet architecture



GIMnet architecture

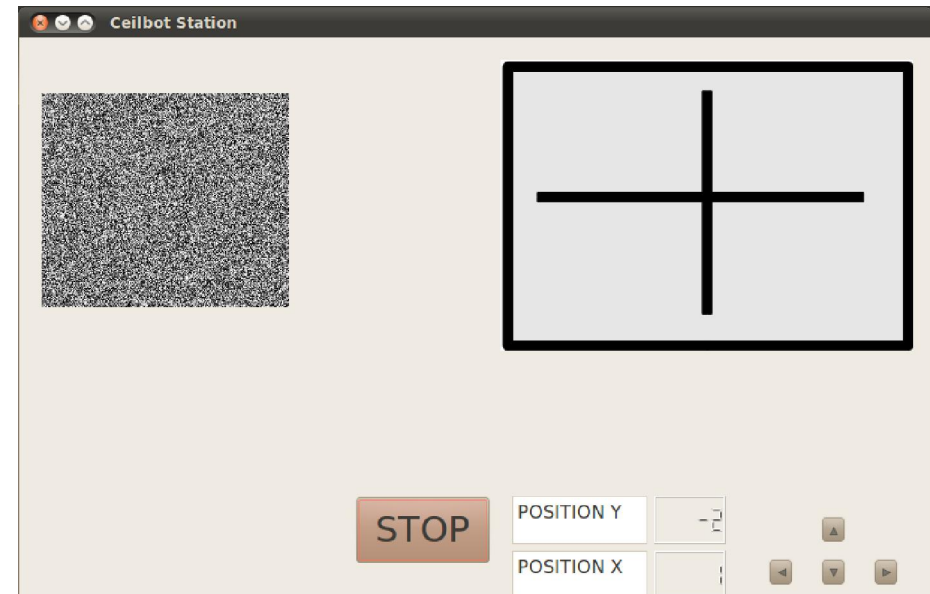
GUI: Design

- Project goal: prototype, which can move
- GUI has a limited function volume
 - Sensor data visualization
 - Control movement



GUI: Implementation

- **MaCI**
 - For the mentioned goals three MaCI clients are necessary:
 - SpeedControlClient
 - PositionClient
 - ImageClient

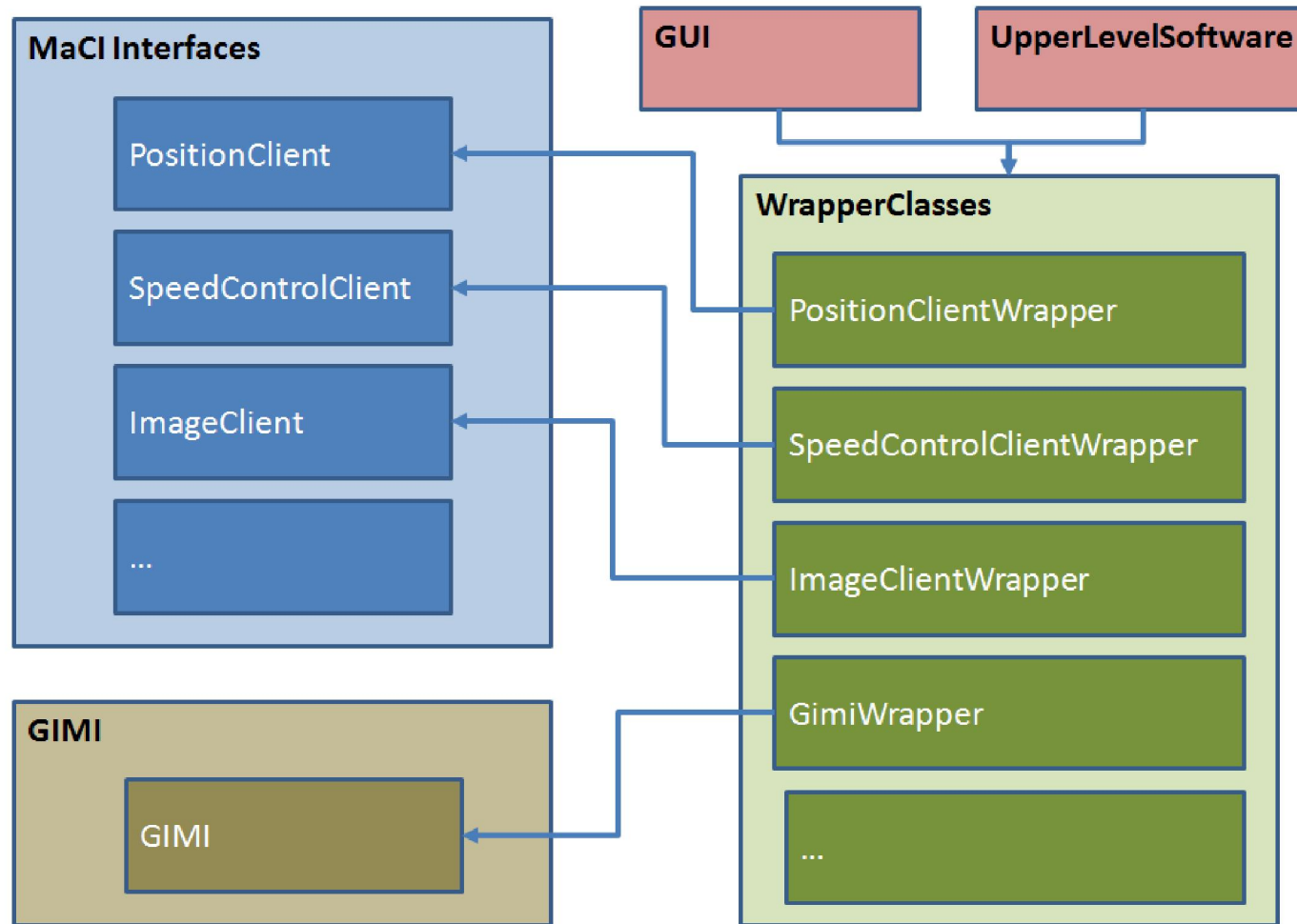


GUI: Implementation

- Implementation with GUI Framework **Qt**
 - Powerful framework for GUI development
 - Language construct: **slot and signal**
 - **Signals**
 - New picture or new position
 - **Slots**
 - Slots are activated by signals
 - Signals → Qt widgets are updated



GUI: Implementation



GUI: Implementation

- **Wrapper Classes**
 - Adapter between MaCI and Qt
 - Create, initialize and deliverer MaCI clients
 - Can also be used for upper level software
 - Implemented as singleton pattern
 - GIMI connection object should be reused
 - MaCI clients can be reused

Thank you for your attention!