

ETAT training center @KMUTNB Rayong Campus



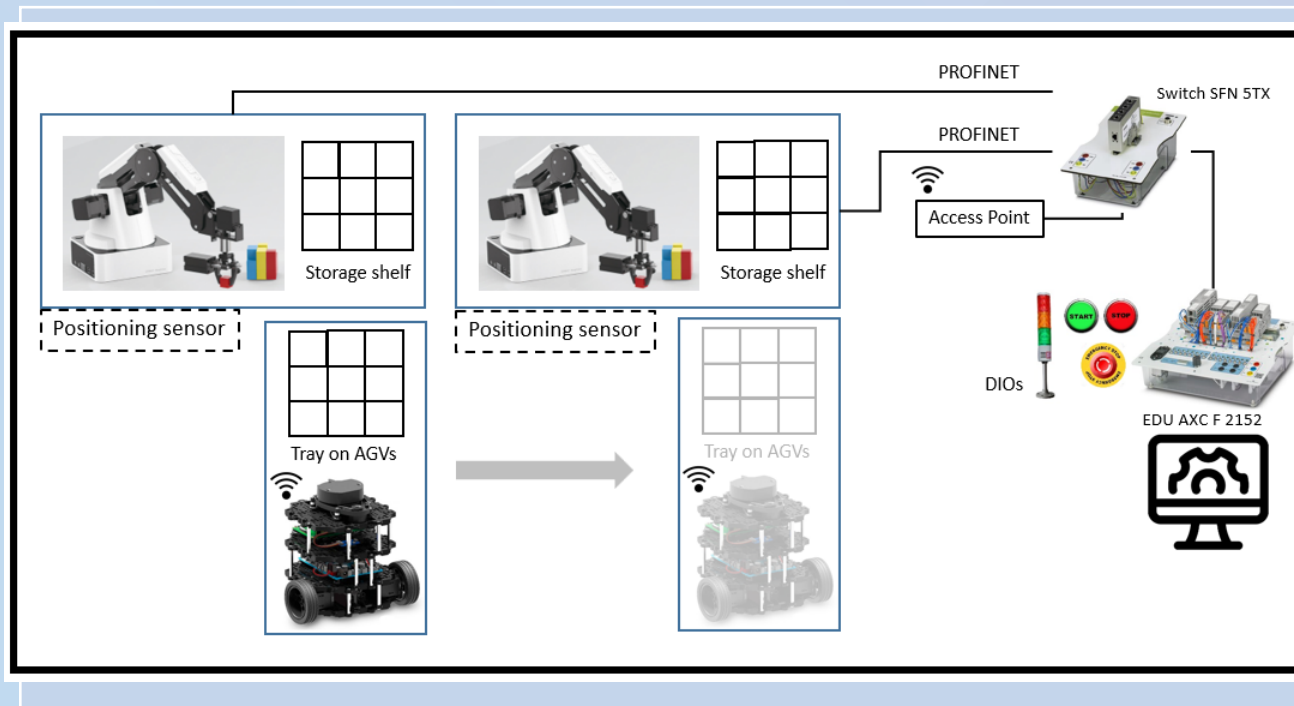
Faculty of Engineering and Technology, Building 51, Room EAT77
<Robotics and Automatic Control Laboratory - RACL>



KMUTNB specific equipment to ETAT Smart Lab (ESL)

- Automation in Material Handlings
- Automation in Transportation
- Industrial IoT & Machine Learning

KMUTNB specific equipment to ETAT Smart Lab (ESL)



Description:

- AGV transport objects from station A to station B.
- At the station, the robot arm picks and places objects, filling in the tray.
- Process controlled by PLC through PROFINET and monitored with PC.
- AGVs communicate with PC via WIFI.

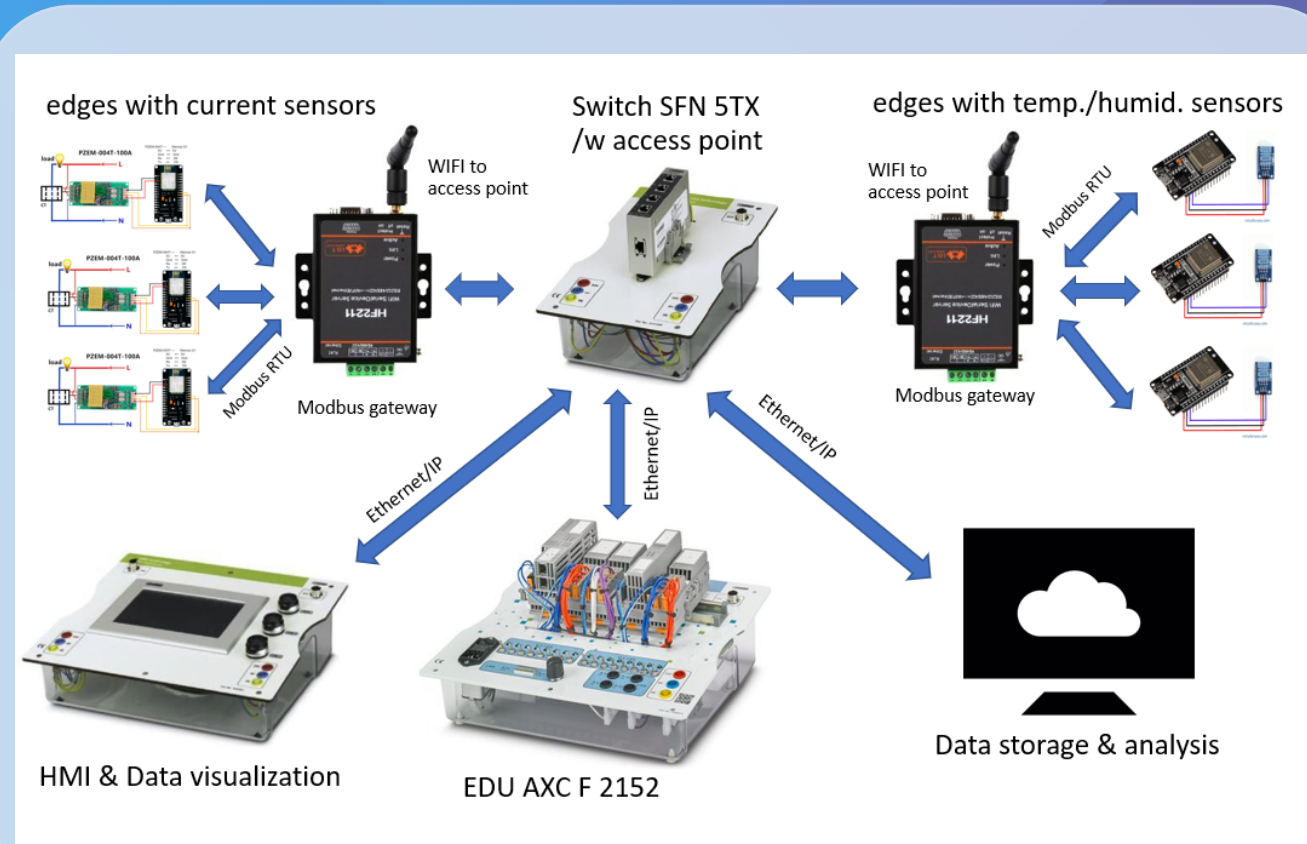
Specification:

- Robot manipulator for education
- ROS-operated AGVs for education
- PLC & PC as master control station

Possibility to courses:

- Python programming
- ROS programming
- Node RED, JSON things
- Data Analysis & Machine Learning
- AGVs

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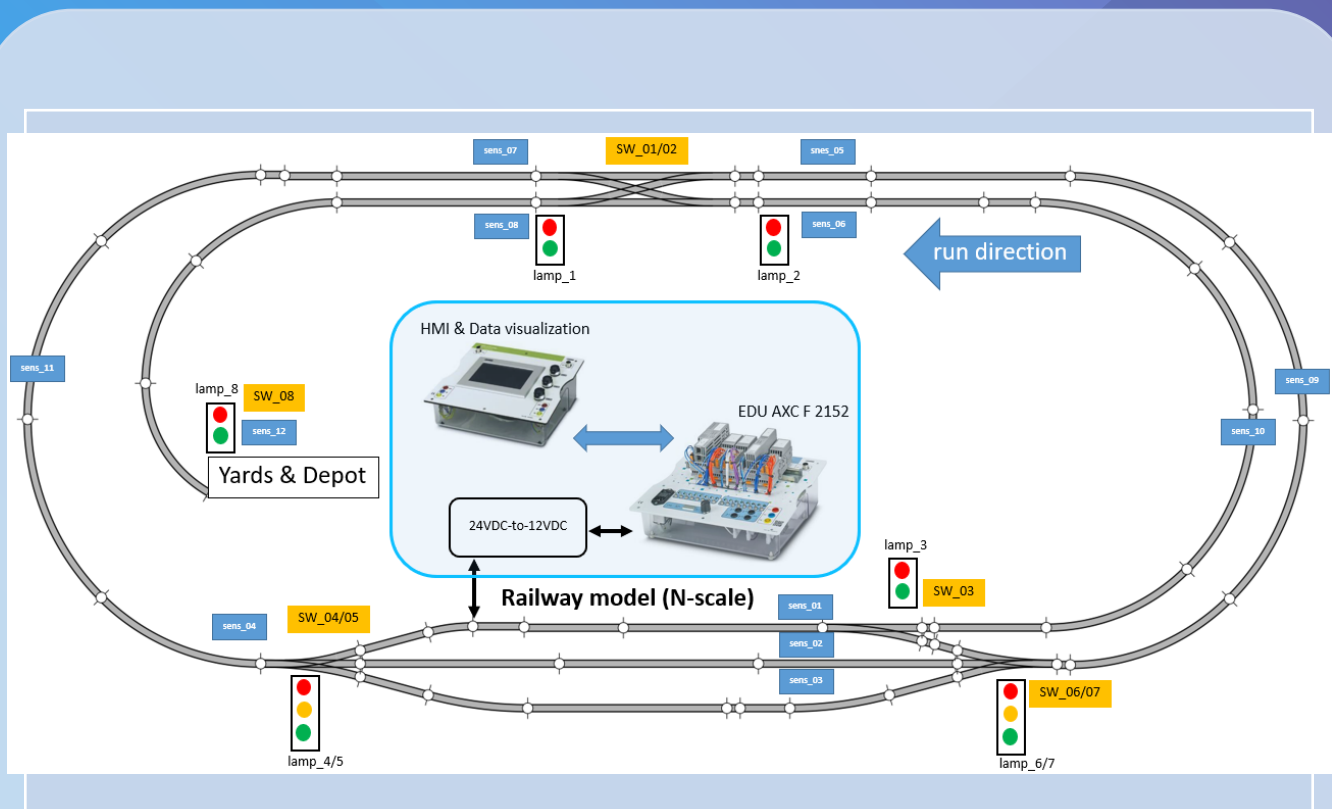
- Description:**
- IoT-compatible microcontrollers sense AC/DC current, temperature, etc.
 - Sensor data via Modbus RTU to Modbus gateway.
 - Gateway via WIFI or Modbus TCP to PLC.
 - All data collected to the cloud and analyzed by PC.

- Specification:**
- IoT edge devices (ESP32-based)
 - Sensors for AC/DC current and environment (humid, temperature)
 - Gateway with Modbus
 - PLC and HMI

- Possibility to courses:**
- Python programming
 - IIoT, AIoT, xIoT, Web of Things
 - Node RED, JSON things
 - Data Analysis & Visualization
 - Machine Learning on Edge (TinyML)

Industrial IoT & Machine learning

KMUTNB specific equipment to ETAT Smart Lab (ESL)



Description:

- Railway model (N-scale) with tracks, crossings, junctions, light signalling, and train-block detection.
- The model railway operated with 12VDC-to-24VDC I/O converters.
- The train control and operation simulated for ETCS standard and displayed either with HMI or PC monitor

Specification:

- Commercial railway model (N-scale)
- All I/Os converted from 12V (Rail) to 24V (PLC)
- HMI on-site and remotely on Web-based

Possibility to courses:

- Railway technology and transportation
- SCADA and HMI
- IEC 61131-3 programming
- Data Analysis & Visualization