Home&Building automation Final project

MC-Guys
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Overview

- Scenarios with live demo
- Node-RED
- Work packages
- Difficulties
- Questions & Answers

Wake up

Her daily workday routine starts at 6 am. Because she loves to get woken up by the sunlight (but there is not always one so early in the morning) the lights turn on and gets brighter and brighter till they finally wake her up. In all other rooms except the bed rooms the shutters going up to let in sunlight again, while the music is playing gently.

On a time based manner

- Philips Hue, Kodi, Shutter servo

Bathroom

After the shower she goes to the kitchen to have breakfast. Due to the high humidity in the bath the windows open. The time in the kitchen is always used to find out what is going on in the world, so the radio automatically starts echoing.

On a time based manner

- Humidity sensor, Servo motor for windows, Kodi

Wake up boys

After some time for her own, it is time to wake up her two sons. They both visit the same school which Kate is teaching in. She turns up the shutters and turns on the light in their bedrooms remotely and prepares the breakfast for the two.

- Servo motor for shutter, LED stripe, hardware button

Leave house

At 7 am everyone is ready for school, so they leave the house together. Kate activates the alarm system and leaves the house. Unfortunately, she forgot to lock the door. 10 minutes later, the motion detectors detect suspicious movements around the house. The alarm system automatically locks the door and triggers the alarm.

- Lock, Motion detector

Coming home

At 4 pm the children and her are ready to leave the school and go home. When she enters the front door after some validation, the alarm system turns off and some lights are turned on in the entrance hall.

- RFID, Lock, Alarm system, Philips Hue

Movietime

After dinner the family sits in the living room and watches a little bit TV. Nic uses voice commands to initiate cinema lighting in the room. The light dims automatically and the window shades go down. Then he chooses a film again by using voice commands.

- Voice command (IFTTT, Adafruit), Kodi, Servo, Philips Hue

Bedroom boys

At 8 pm it is time to bring the children to bed. The rooms are personalized for the boys needs. One of the boys is afraid of the dark, so the light dims automatically but does not turn off. The other one likes to fall asleep with a little bit of music in the background but when the boy falls asleep the music turns off automatically to save energy. These two features are time controlled so they are activated when it is 8pm . The shutters close.

On a time based manner

- Philips Hue, Kodi, Shutter servo

Bedtime

When the parents go to bed the security system is activated: all doors and windows are closed and shut and the alarm system is activated. Also the motion detectors which are installed in the garden are activated.

- Lock, Alarm system, Servo

Node-RED

- Live preview

Work packages

Denis Sivak	Servos, LED stripe, RFID, lock
Manuel Mühlschuster	Servos, LED stripe, Voice control
Bernhard Hiesl	Servos, LED stripe, RFID, lock, Voice control
Piotr Swietek	Philips Hue, motion detector, lock
Oliver Barth	Kodi, presentation

Difficulties

- Voice control
  - Exceptions and errors running program (therefore we used IFTTT)
- Node-RED
  - (global) context variables
- Philips Hue
  - Setup

Thanks

- Questions & Answers