Semester Project Report

Methodes

Circuit design

Control panel

We choose to have a Control panel, because a characteristic of a smart home is according to, (M. R. Alam, M. B. I. Reaz, & M. A. M. Ali, 2012) that it can be controlled remotely from outside the home.

The control panel could be developed further to be wireless with Bluetooth and controlled via an app.

For the Control panel, we choose to use buttons to navigate in a menu displayed on the LCD.

A Potentiometer was planned to control the RGB Values and the brightness of the LED's in.

We incorporated 5 buttons UP, DOWN, OK, BACK and a Button for an extra function (sleep mode).

The Resistors are Pull up Resistors for the I2C Module of the LCD.

PCB

We decided to have the components in the house (switch-buttons, LED, Potentiometer) wire connected to the PCB with pin header connectors. So, the PCB is detachable from the House.

We Further divided the circuit in two PCB. One for the Control panel, with the Buttons and Potentiometer mounted on the PCB via Through hole soldering and a pin header connection to the Liquid Crystal Display (LCD).

The other PCB has the transistor driver circuit for the LED's and the microcontroller on It.

3D-Modelling

We worked on a 3D-Modell for the House to 3D-print. Because the Walls have a simpler design, we decided to laser cut the Walls but print the Bottom.