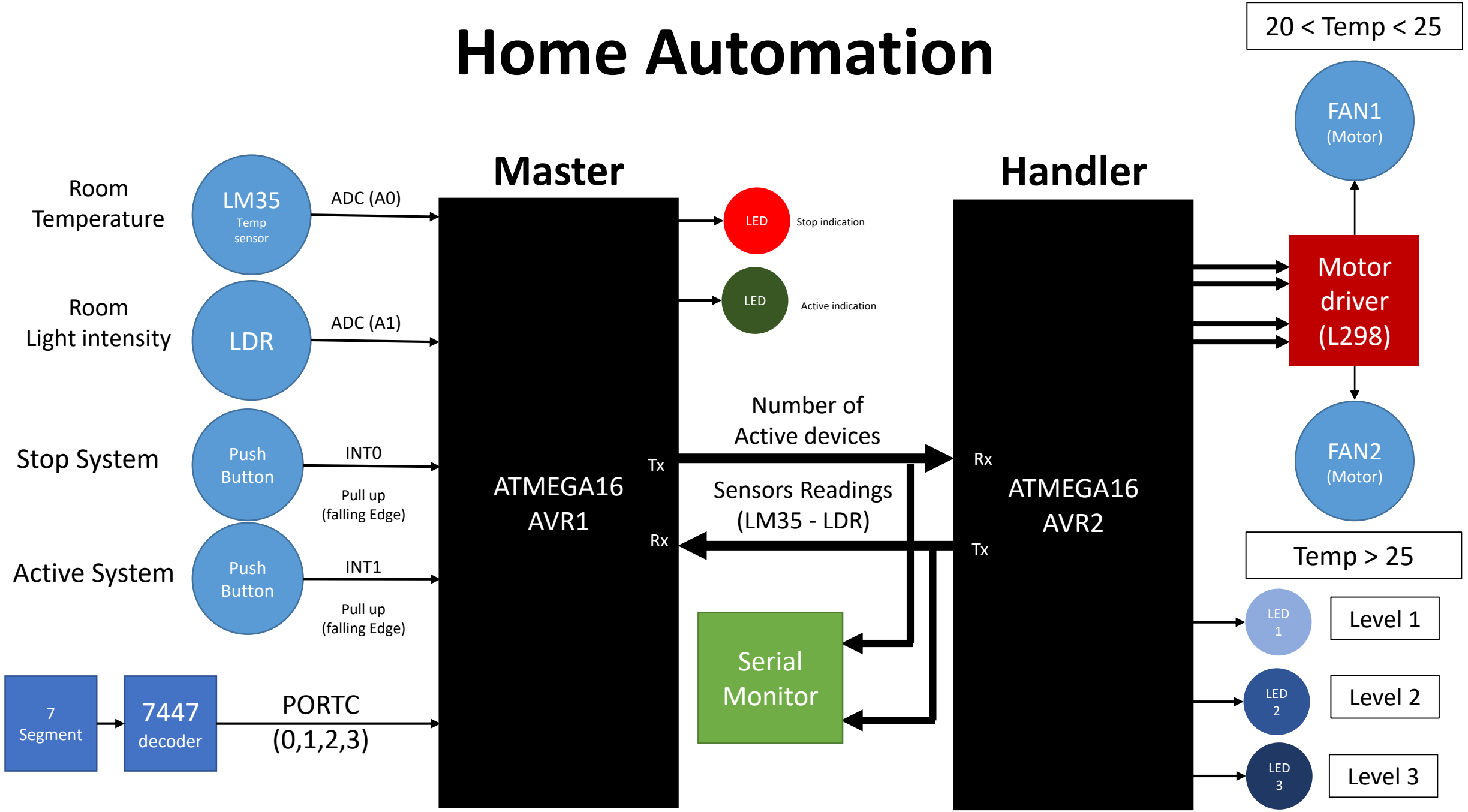
Home Automation



Project Description

- You are asked to build a Home automation system which consists of:

1. Master Controller (AVR1)

A. ***Temperature Sensor*** to watch the temperature of the Room.
B. ***LDR*** to watch the light intensity.
C. ***Two Push buttons*** to Activate and Deactivate.
D. ***Two LED*** indications for the system is active or not.
E. ***7-segment display*** indication of the Active devices on **Handler** AVR2.

2. Handler Controller (AVR2)

A. ***FAN1*** Runs when the temperature is between 20 deg Cel and 25 deg Cel.
B. ***FAN2*** Runs with ***FAN1*** when the temperature is between 20 deg Cel and 25 deg Cel.
C. ***Three LEDs*** Runs successively with the decrease of the light intensity in the ROOM.

- LED 1 : when LDR > 10K
- LED 2 : when LDR > 100K
- LED 2 : when LDR > 500K

Note : You have to input the Password on the Serial Monitor correctly to Activate the system.

- The password is predefined in your code.

Password

- The password is predefined on the Master controller on your code.
- You have to input the password using the serial monitor display and check its validity before activate the system
- If the user inputs the password three times wrongly. You will print “wrong password” and block the system

Master Controller

- After Checking the sensor validity.
- Master controller will read the sensor readings and send them through the UART to the Handler
- If the stop button is pressed, the controller will shutdown the system ,the RED LED will be turned on and send indication to the handler to turn of all devices.
- If the active button is pressed, the system will be activated again and the Green LED will be turned on.
- The Master will receive the number of activated devices from the Handler and displays the number on the 7 segment.

Handler controller

- The Handler Controller is responsible for Activating the devices in the Room.
- It will receive the sensor readings and take the action on those readings.
- Fans are considered as motors so you will control it using the L298
  - Activate FAN1 if the Temperature is between 20 and 25 deg Cel.
  - Activate FAN1 and FAN2 if the Temperature is higher than 25 deg Cel.
- LEDs are the Lighting system of the room depending on the LDR reading you will Turn on and of the LEDs
  - Activate LED1 if the LDR resistance is higher 10Kohms.
  - Activate LED1 and LED2 if the LDR resistance is higher than 100Kohms.
  - Activate All LEDs if the LDR resistance is higher than 500Kohms.
- The Handler will send the Number of Activated devices to the Master through the UART.