PROTOTYPE

SMART HOME

By: Nader Abd-Alhalim Ahmed

INTRODUCTION

○ OBJECTIVE:

Just to test all the knowledge I have been learning recently and get some experience through the process

○ Summary of project work:

Master MCU is connected via I2C communication protocol to multiple slaves and according to received data from slaves will take some actions.

○ Hardware components:

1- Two microcontrollers from this type (pic18f46k20) one of them is master and the other is slave.

2- RTC(real-time clock ds1307) which has the date and time and sends them to Master MCU.

3- External EEPROM.

4- temperature sensor (TC74)

5- Motor

○ Software:

- Using MPLAB X IDE which has a feature called MCC(mplab code configurator) to generate needed modules to build the project.
- These modules are ==> pin manager (GPIO), INTERRUPT, FOSC, I2C, and UASRT.
- Also implemented some modifications like ECUL MODULES Layer which has some other modules created and implemented by me like real-time, temp-sensor, external-EEPROM

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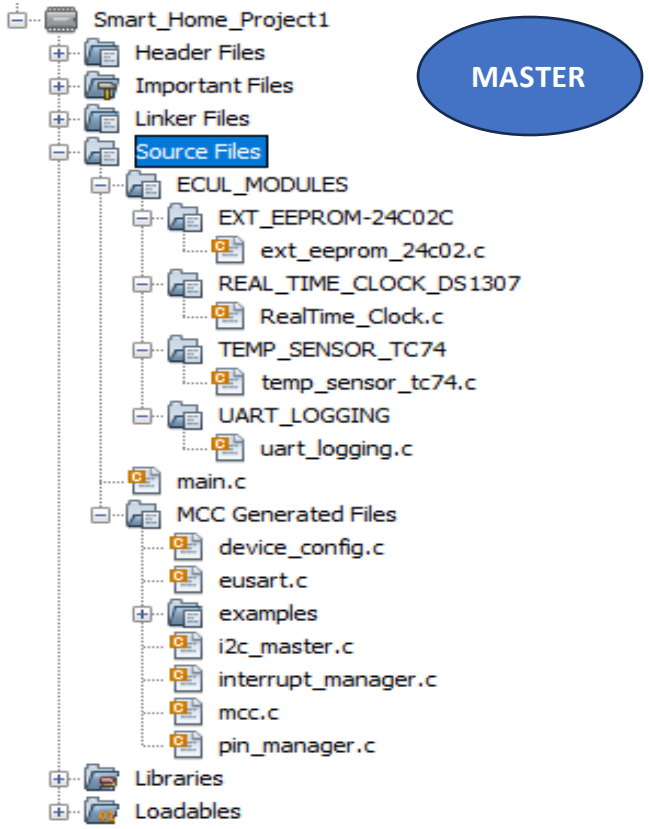
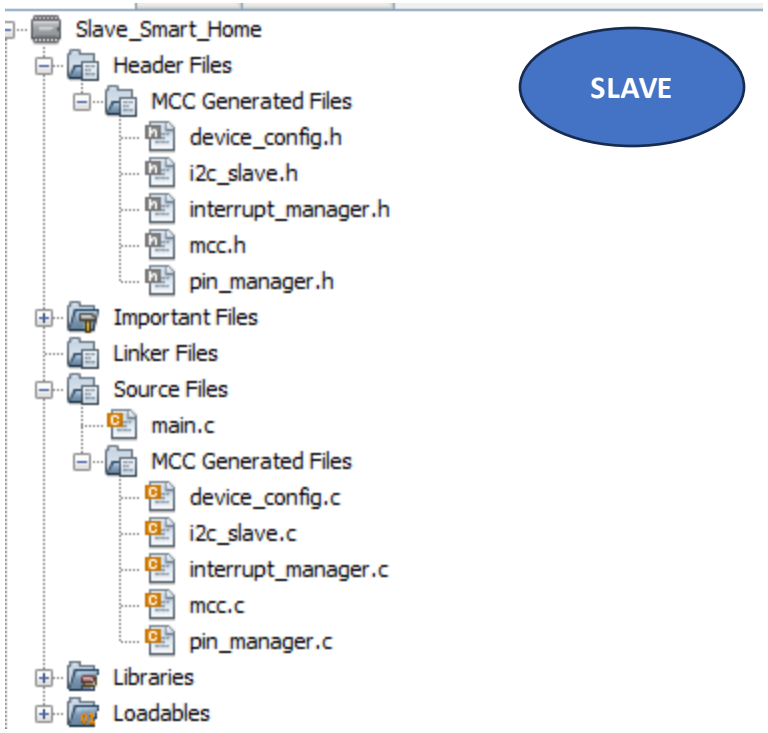
System in action:

- Master MCU will communicate with a real-time clock (ds1307) to receive the date and time from it.
- Then Master will rearrange the data to be more readable and send it to a virtual terminal to make sure that data is correctly received and transmitted.
- Master MCU will communicate with a temp-sensor to receive current temperature.
- Then Master MCU will send the data to slave MCU which will take some actions according to received data.
- The following pics will show the project layers for Master MCU and SLAVE MCU



MASTER



SLAVE

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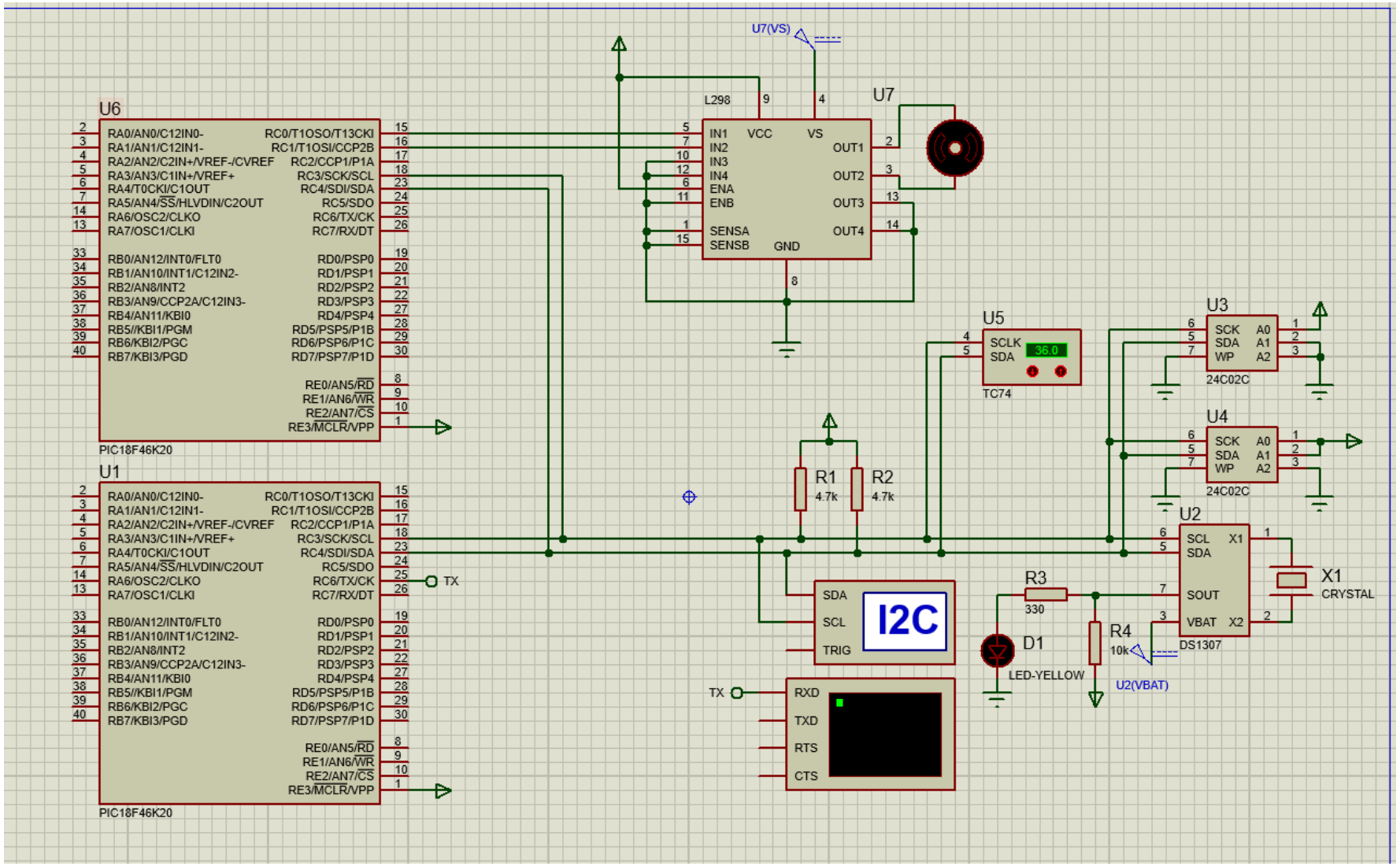
HARDWARE DESIGNE



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