Smart Home Project

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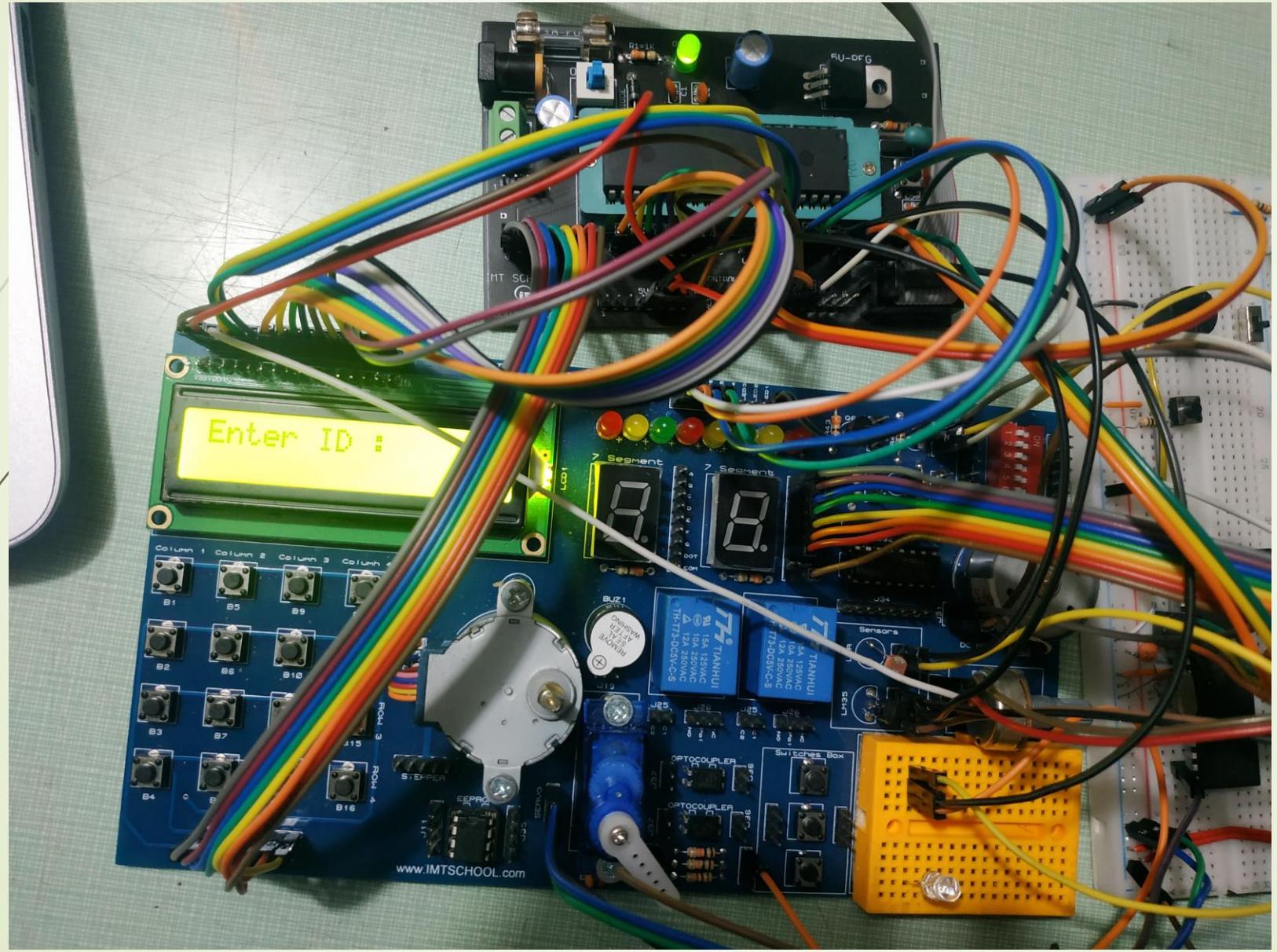
Introduction :

- I made a smart home system that includes two mcu's Atmega32 and communicates between using SPI protocol. First we should enter the ID then the password that is equal to the ID inverted . After entering password it checks it if equal ID inverted it enters the system else you will have only three trails and shown in the SSD the number of the remaining trails if you exceeded it the system will till you "bye bye" and terminate. When entering the right pass you should enter '1' to open the door . Then you will have four options first three for the three rooms and the fourth for "More" options. If you select any room you have three option '1' for open the light , '2' for close it and '0' to return the menu. If you select the "More" option you will go to second menu that have the temperature reading and the light intensity reading which control the led intensity and you can return to previous menu by entering '0'. The third option is "More" which will lead you to the third menu which controls the fan : '1' to open it ,'2' to close it '0' to return and '3' to the last menu. The Last menu to play music '1' to play it, '2' to stop playing it and '0' to return to the previous menu.


Enter ID :
7 Segment
7 Segment
Column 1
Column 2
Column 3
ROW 3
ROW 4
Sensors
Switches Box
OPTOCOUPLER
OPTOCOUPLER
www.IMTSCHOOL.com

Layered Architecture :

1- Master MCU

Libraries

- STD_TYPES
- BIT_MATH

App

- Main

Hal

- LCD.
- Keypad.
- Temperature Sensor (LM35).
- LEDs
- LDR.

MCAL

- DIO.
- PORT.
- SPI.
- ADC.
- TIMER0

1- Slave MCU

Libraries

- STD_TYPES
- BIT_MATH

App

- Main

Hal

- Servo Motor.
- DC Motor .
- Buzzer.
- SSD.

MCAL

- DIO.
- PORT.
- SPI.
- TIMER1.
- TIMER0

Proteus Schimatic :