## horizontal line



Smart Home Project

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# Overview

In this project I used two microcontrollers master and slave, LCD to display to the user, keypad to let the user enter the password, UART to use the virtual terminal to ON and OFF the rooms, SPI to send the data to slave MC, H-bridge to help the fan motor, and a servo to open the door.

# Goals

1. Is to make the home more secure
2. To make it easier for the user to control his home wirelessly (using Bluetooth)

# Arch & Design

In the master MC code, I included and added the DIO, LCD, UART, and keypad header files.

On main, I wrote on the LCD to enter the password and activate the keypad inside the while but most of the codes are on the keyPad.c where I made two global variables one which is the password itself the other which will store the numbers inserted by the user and 3 variables which will help the 2 variables to increment and check, the function checkPass will check if the password is correct in the array correct.

When the user press ‘=’ the door opens 90 degrees to the right and a welcome will be printed on the LCD then Uart and SPI will turn on so no one can have access to the home only if the password is correct when the user press ‘1’ this master MC receives using the function Uart rxchar and sends 0x01 through SPI to the slave MC then shows on the VT that room 1 is on then if pressed 1 again it turns it off and so on with the other cases if the password is wrong the LCD shows that it is wrong then let the user enter the password again.

In the slave MC code, simply I initialized the DIO and SPI as a slave then I enabled and adjust the timer for the DC motor and give it a speed of 80 after all the spi function check if the data is equal if it is it light up room 1 then if the data is sent again it turns it off the same with the other conditions.