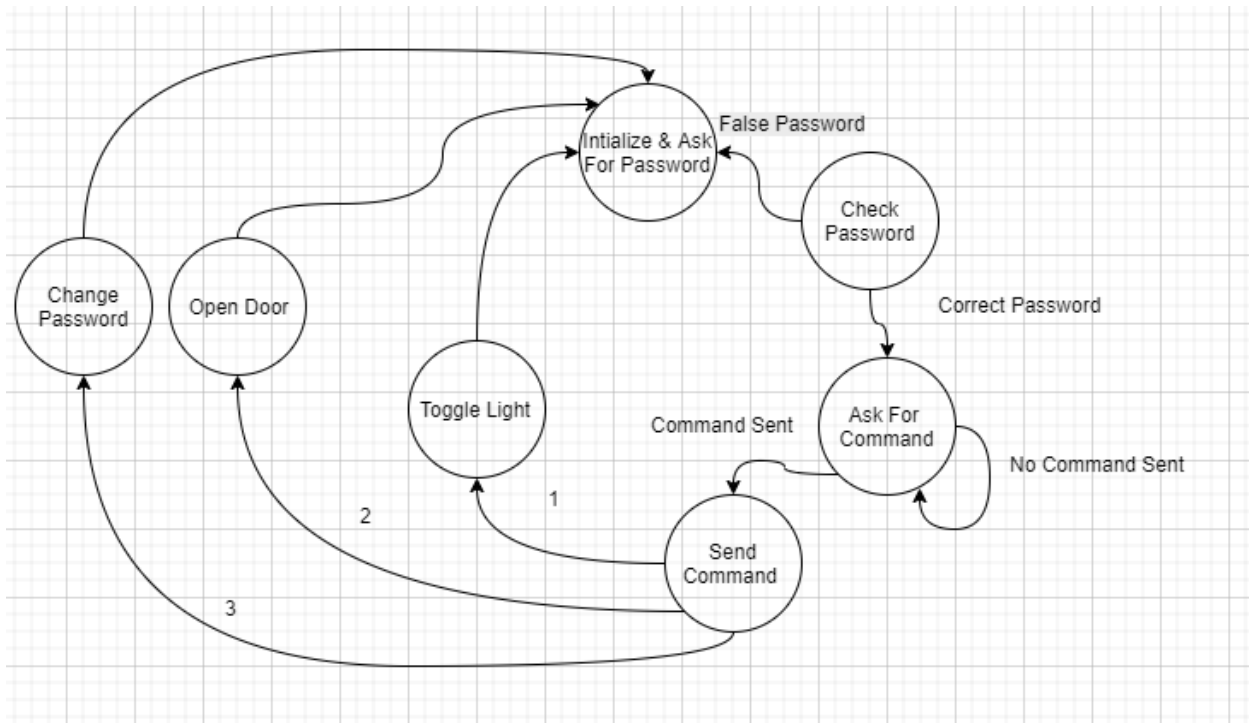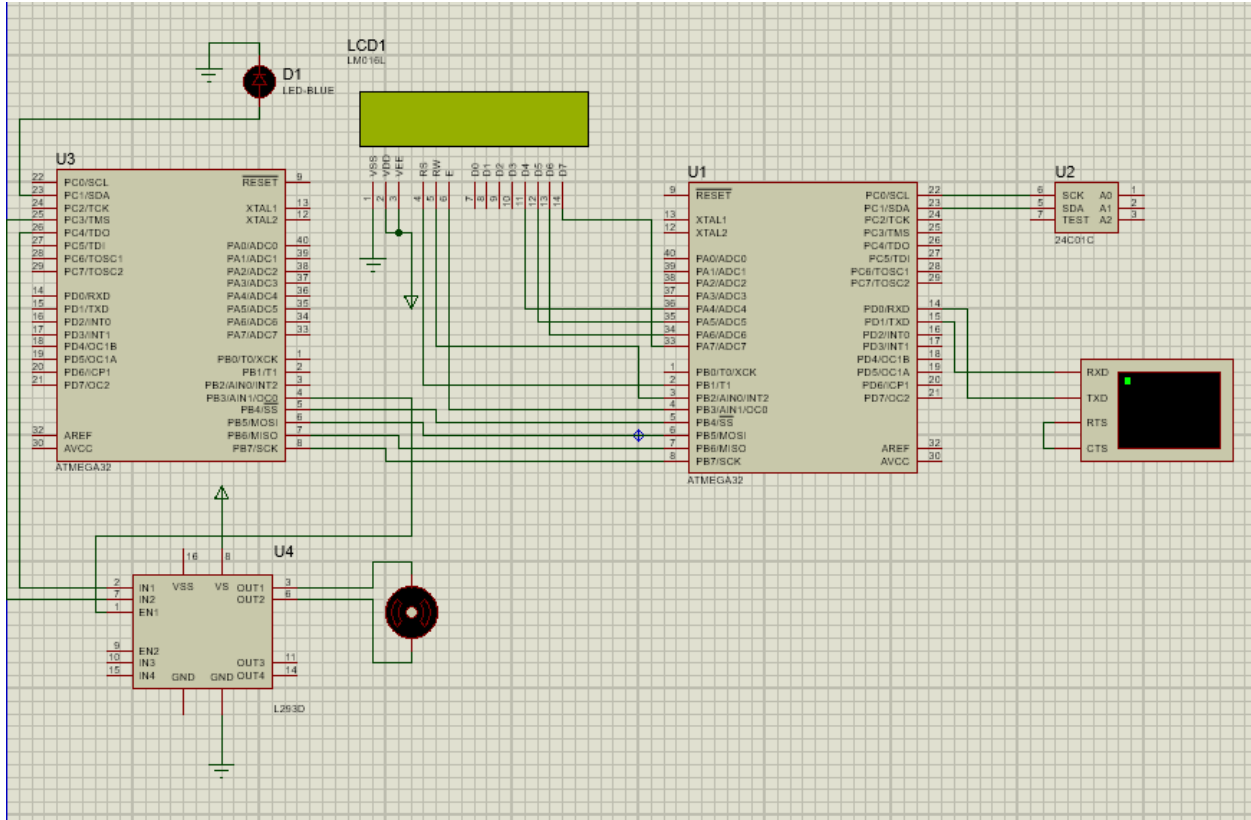# Smart Home Project

By Ahmed Ossama Ahmed

System consist of Two MCU's First MCU responsible for security part of the system setting password change it and checking user entered correct password. The first MCU is also responsible for receiving command for the Bluetooth module through UART communication and check if user command is to change password and send the command to the second MCU. The Second MCU is responsible for checking for user command and execute those command whether they are opening door for user or toggling light.

State Machine Explanation

1) Initialize the system communication. Spi for communication between the two MCU. UART between the Bluetooth module and the first MCU. I2C between the EEPROM and the first MCU. Ask for password to be entered by user which is the predefined password (1234) which can be changed by user

2) Check that password entered by user match the predefined password to accept commands by user

3) Send command received by the uart communication protocol from the Bluetooth module to the second mcu and check if the command is 3 so password of first mcu is changed any other command is dealt with in step 4 by the second mcu

4) Check the command send by the user and choose operation based on the command toggle light if input is 1 open door then auto close it after fixed amount of time if input is 2

5) After user send command user must send password again before sending any other command

Proteus Model Of System

1) Virtual terminal represent the Bluetooth module
2) The LCD is used to visualize state of systems
3) H-Bridge is used to control the dc motor responsible for door opening and closing