

AMIT's Graduation Project

AMIT-Learning

Made by: Taher bassem

Email: taher.elnumairy@gmail.com

Phone number: 01113720200

Table of Contents

Project Description	3
Finite State Machine of the System	4
Schematic	5
Protues	6
Conclusion	8

Table of figures

Figure 1: Description	3
Figure 2: Finite State	4
Figure 3: Schematic	5
Figure 4: Initial State	6
Figure 5: First Button	6
Figure 6: Second Button	7
Figure 7: Second Press	7

Project Description

- This project is Smart Home based Bluetooth where we want to control home appliance wirelessly using Mobile App via Bluetooth.
- Two ECU's Communicate with each other the first is a control ECU which takes the input from Bluetooth and send it to the Sink (Actuator) ECU via SPI to interpret which action should be taken
- Let's have an example



Figure 1: Description

Finite State Machine of the System

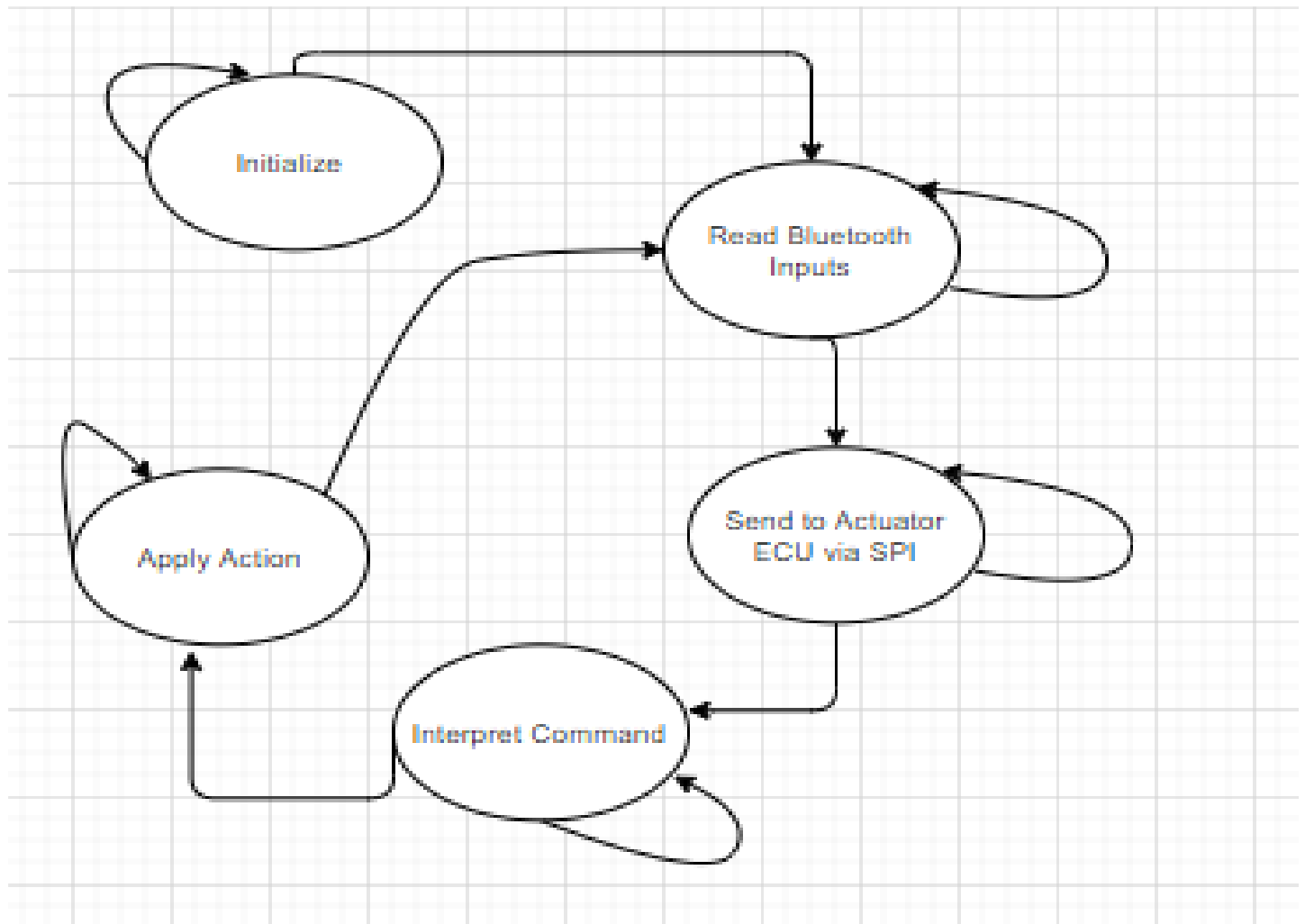


Figure 2: Finite State

First initializing my code with the functions needed then sending the wanted command to the master ATmega32 avr by the Bluetooth device which in this case is my mobile phone, then the master AVR Kit sends the action to the slave kit which enables the interrupt to do the action needed then repeating the cycle.

Schematic

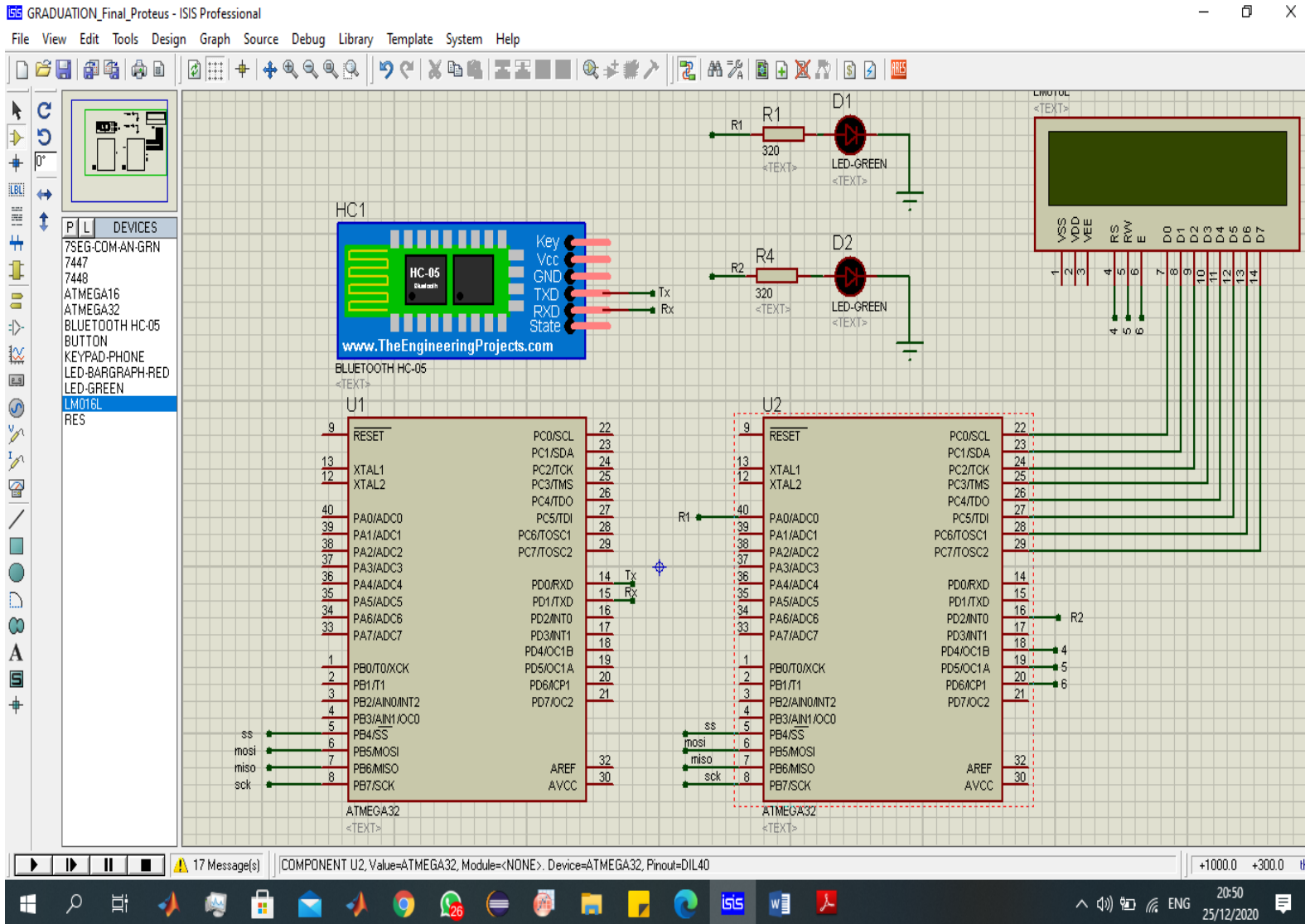


Figure 3: Schematic

U1 is the Master Kit, U2 is the Slave Kit, HC1 is the Bluetooth device (HC-05), LM016L is the LCD and the two leds are D1 and D2 connecting them with resistors of 320 ohm.

Each likely named ports are connected to each others as in the Master kit PB4(SS), PB5(MOSI), PB6(MISO) and PB7(SCK) are connected to the same ports in the Slave kit.

Then connecting the PD0(Rx) and PD1(Tx) of the Master Kit to TX and RX of HC1 respectively.

Then connecting from PC0 to PC7 in the Slave Kit to Ports from 7 to 14 in the LCD and from PC4 to PC7 in the Slave Kit to Ports from 4 to 6 in the LCD.

Finally connecting PA0(R1) and PD2(R2) in Slave Kit to leds D1 and D2 respectively.

Protues

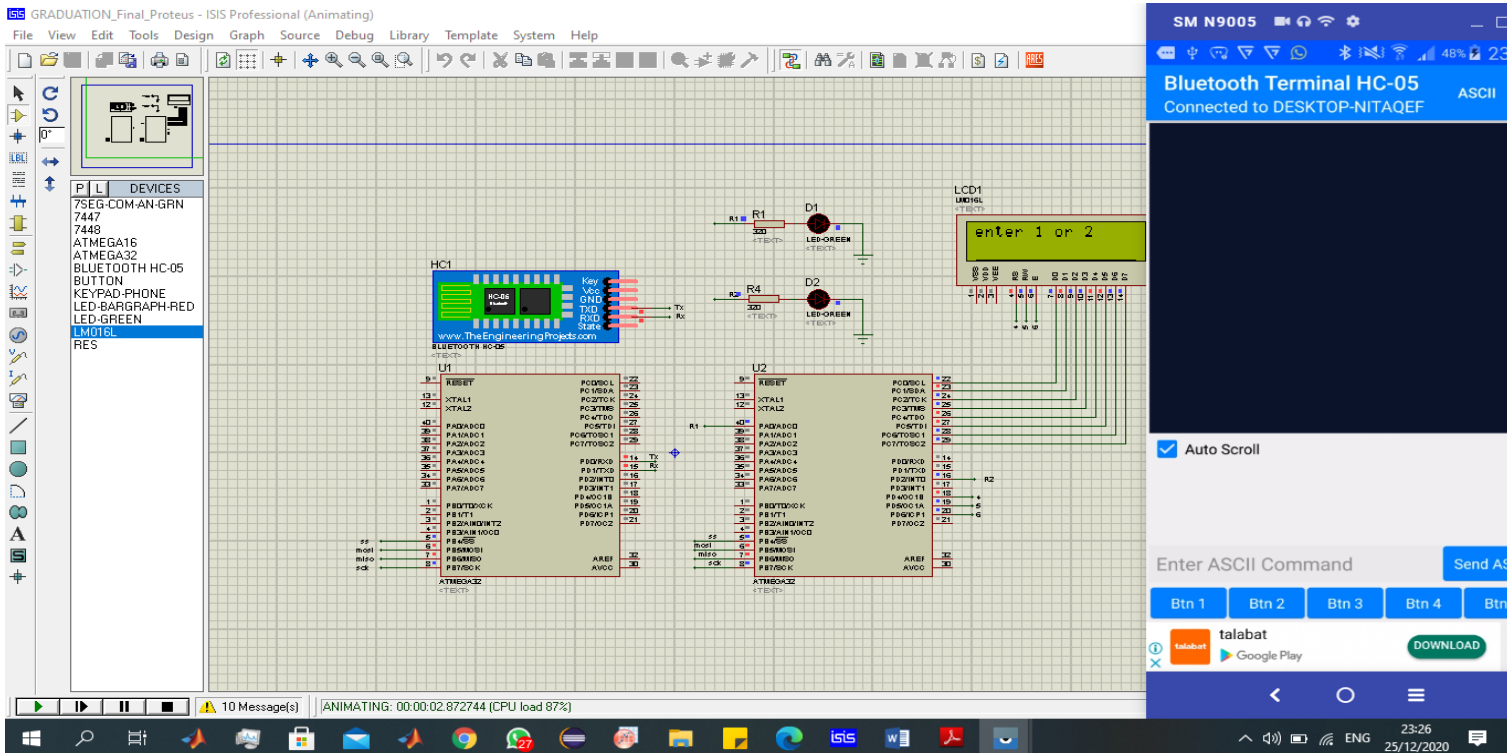


Figure 4: Initial State

By running proteus and connecting my mobile via Bluetooth the LCD shows to enter 1 or 2.

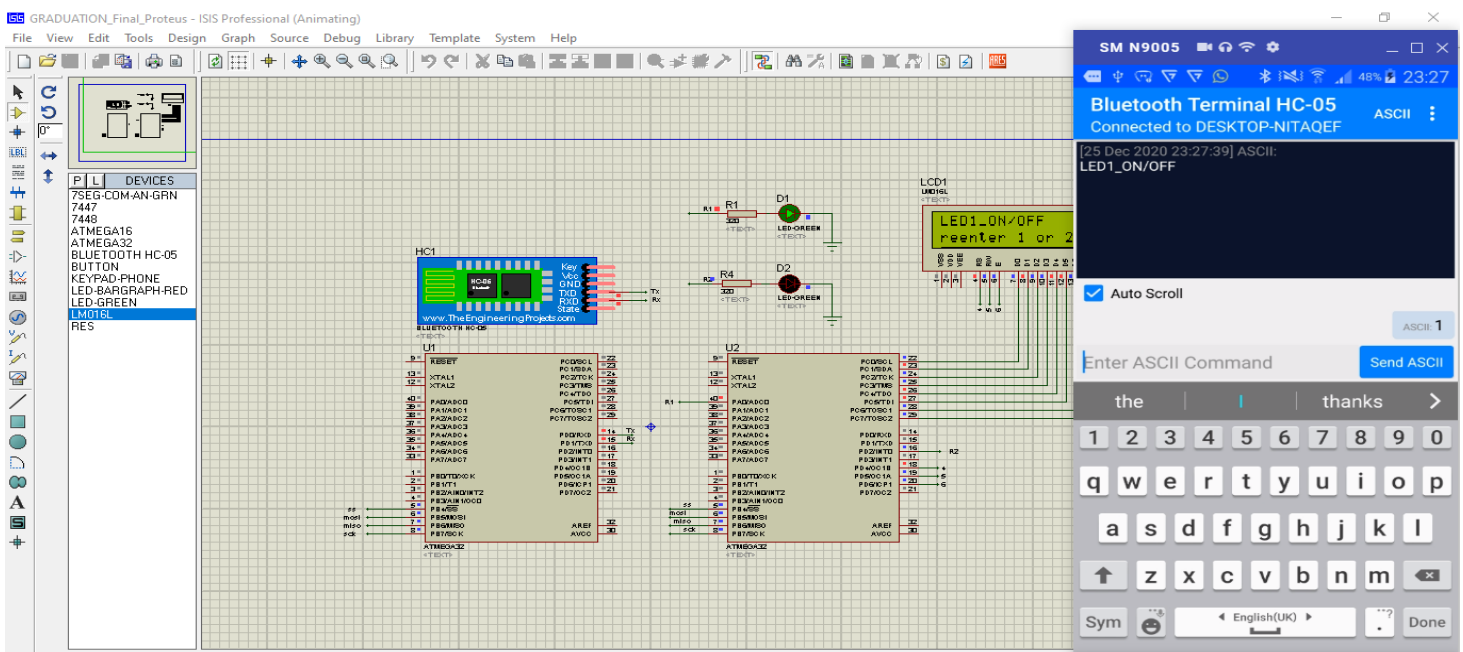


Figure 5: First Button

After pressing sending 1 from the mobile the SPI master send 0x01 to the slave SPI which is used to turn the first led on or off according to its present condition

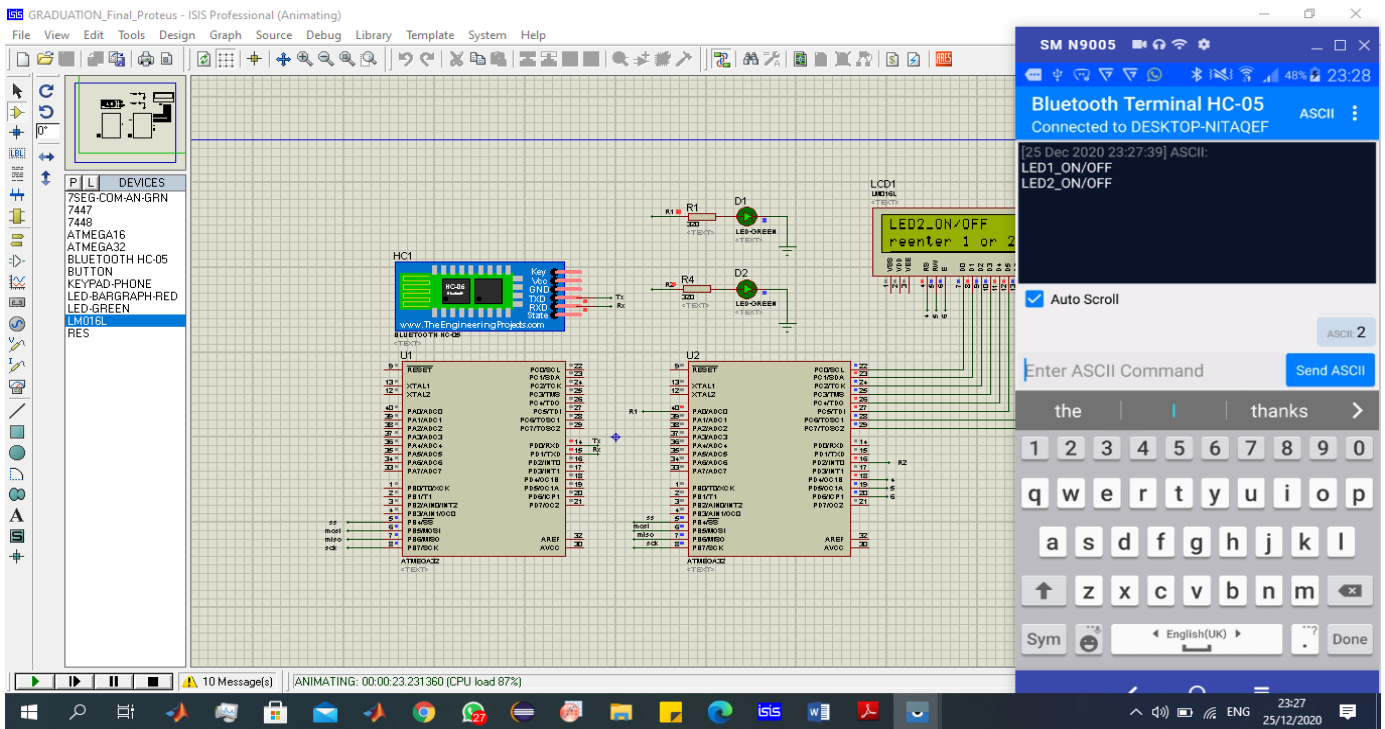


Figure 6: Second Button

After pressing sending 1 from the mobile the SPI master send 0x04 to the slave SPI which is used to turn the second led on or off according to its present condition

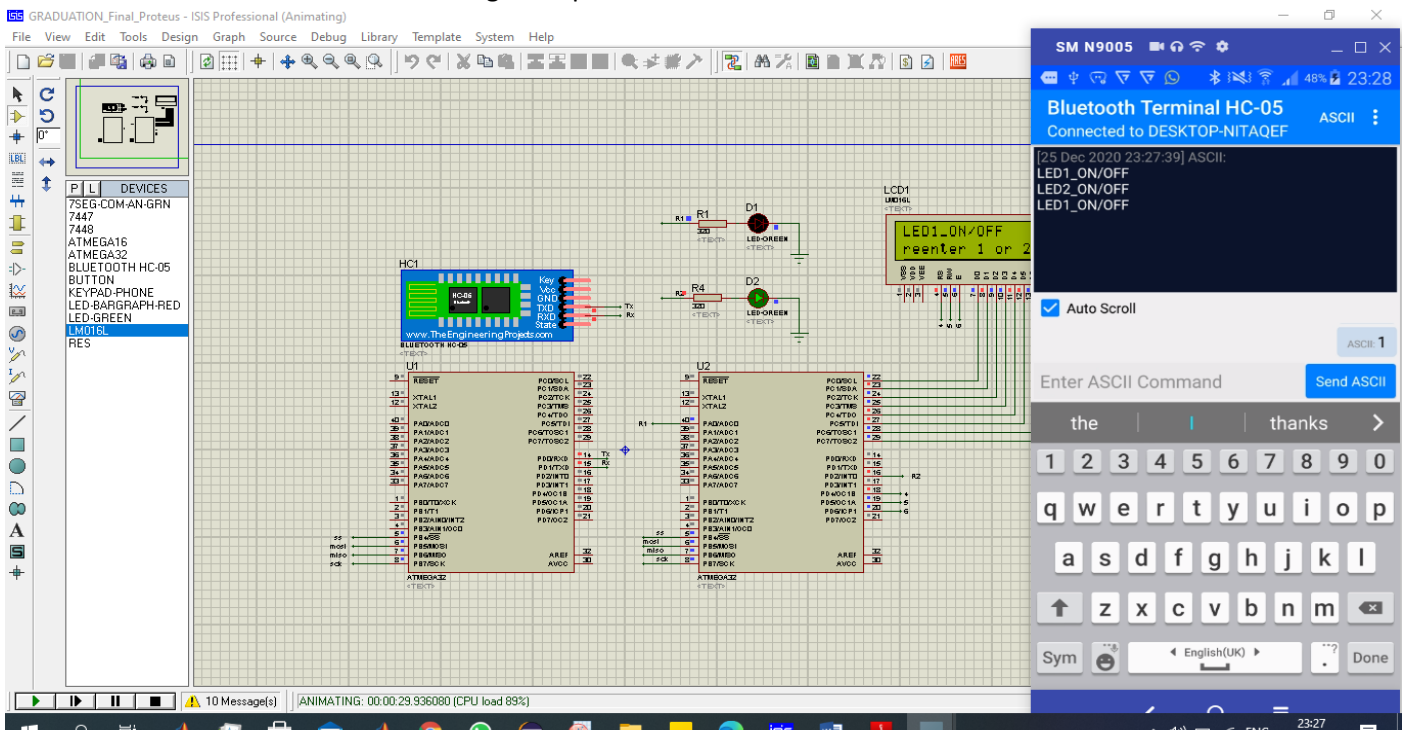


Figure 7: Second Press

After pressing 1 for the second time the first led is turned off because the past condition of the led was on

Conclusion

The project code and simulation is running successfully.