

Name: Mohamed Ayman Sheta

Group: Alex_20

AMIT Graduation Project

Smart Home Application

Description:

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

Implementation:

Step 1:

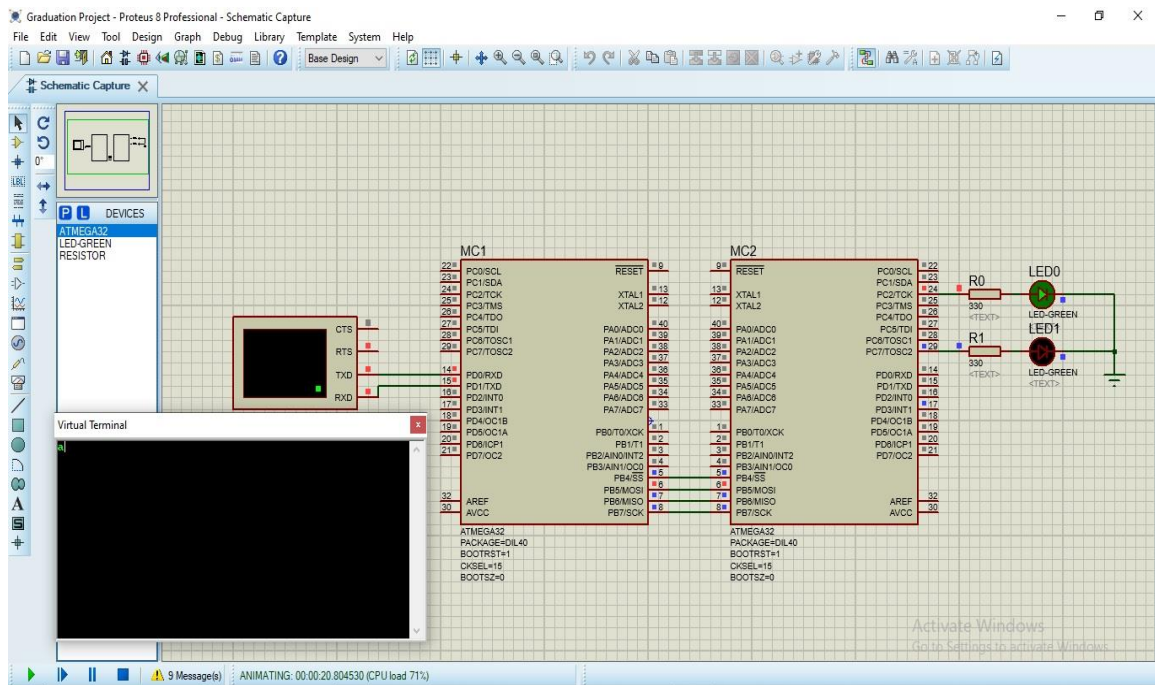
- Writing the code for ECU 1 , which has to be programmed to receive data via UART, then transmit the data to ECU 2 via SPI communication.

Step 2:

- Writing the code for ECU 2 , Which has to be programmed to receive data(order) through SPI, and has to implement the order (Switch ON or Switch OFF).

Step 3:

- Drawing the Simulation, having the two ECUs, where ECU 1 connected to a virtual terminal (as a source of data) through RX & TX Pins , and connecting the two ECUs through SPI pins (MOSI,MISO,SCK,SS) , ECU 2 will be connected to two output switches (Leds) on which it will execute the order. Shown the Simulation Below:



Step 4:

- After the simulation runs successfully, we will start implementing the project on reality.

Step 5:

- We will buffer the two codes that we have written (step 1 & 2) on two ECUs (Master & Slave).

- Using a Bluetooth UART Terminal and connecting it to ECU 1 which will be receiving data from mobile application to the ECU.



- Connect the Two ECUs together through SPI pins.



Step 6:

- After we finish the connection we will run the programs and start sending data through mobile application.