AMIT Diploma Graduation Project

Smart Home based Bluetooth

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Smart Home

Project Description:

- This project is Smart Home based Bluetooth where we want to control home appliance wireless 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.

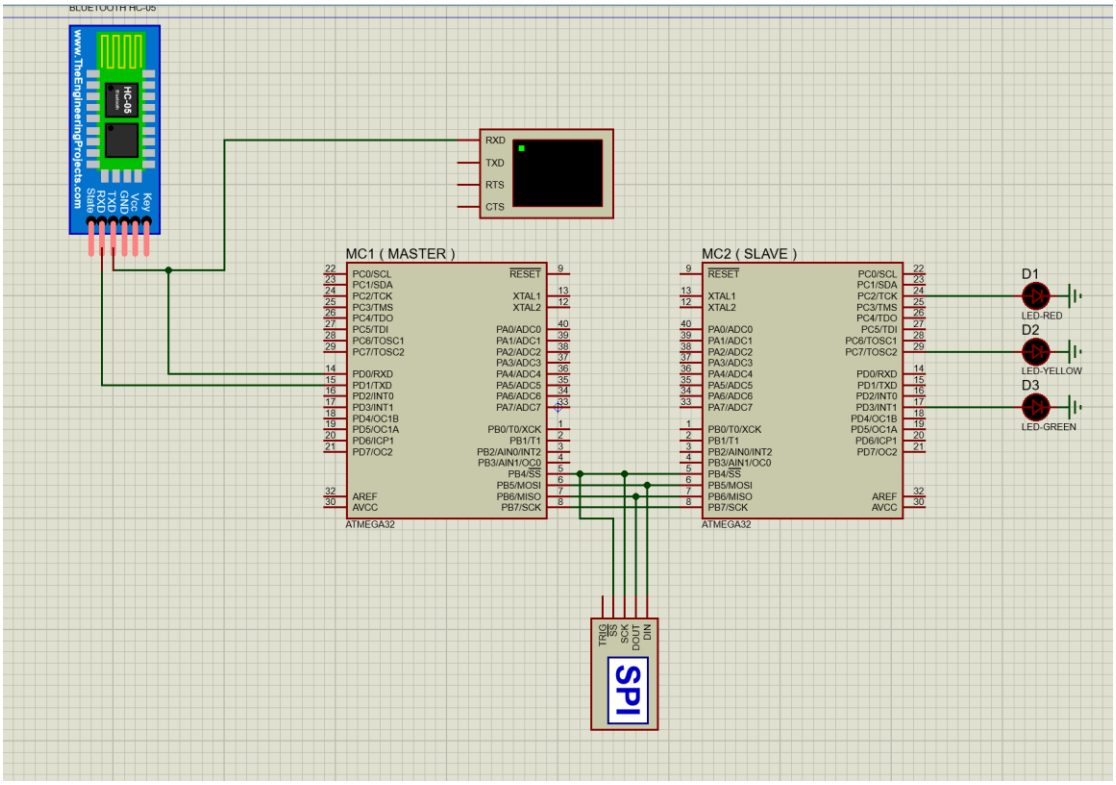
Project Components:

- Proteus Professional is used to simulate the Project.
- 2 Atmega32 MCUs Master and Slave.
- HC-05 Bluetooth Modules.

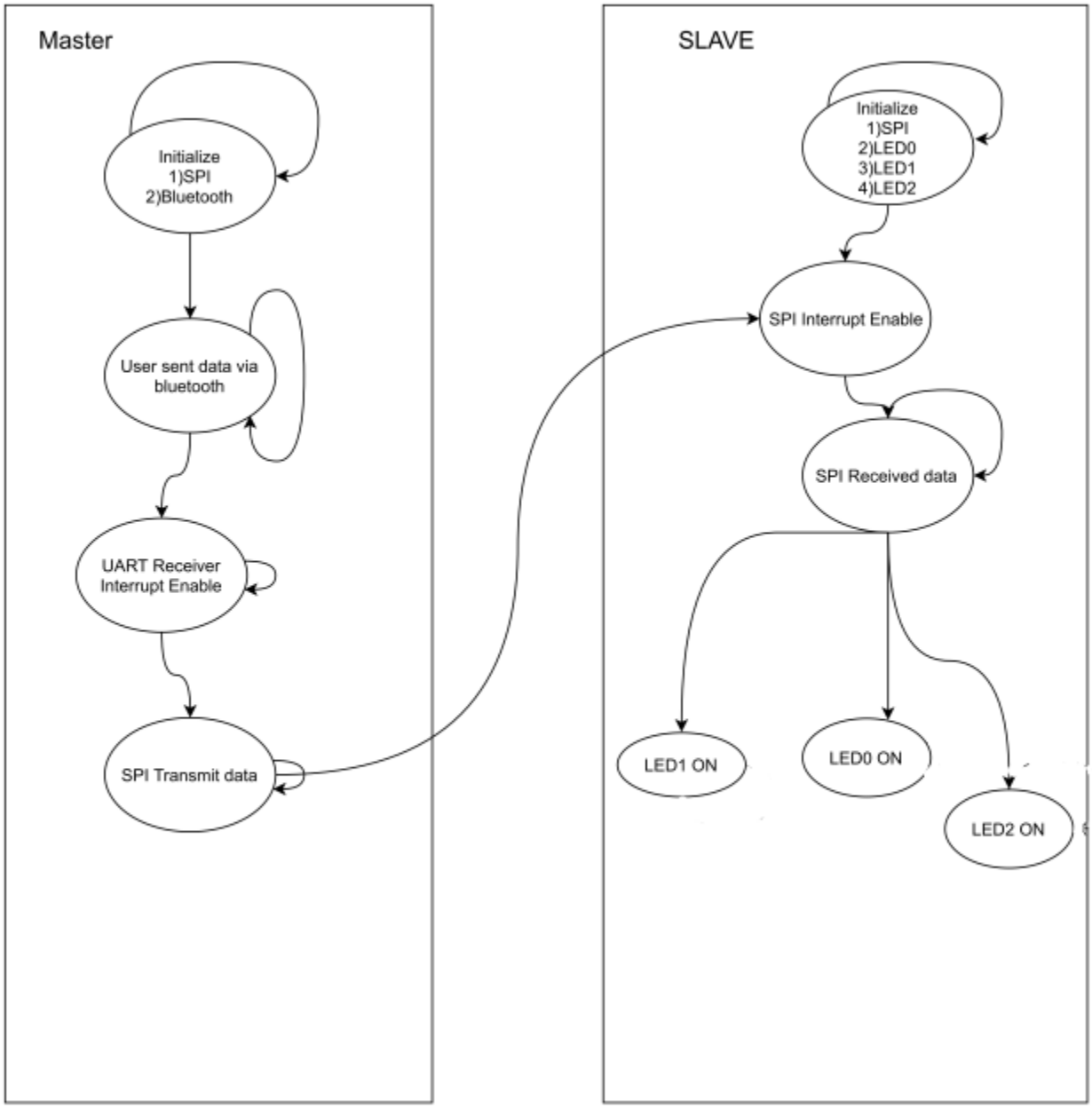
The proposed system:

When we Start the program the first micro controller (MASTER) will wait to take input from Bluetooth via UART protocol in order to send it to the second micro controller (SLAVE), the user will have the choice to turn on or turn off any of the three led through three character (Capital or Small), for the first led to turn on the user will have to enter character ‘R’ or ‘r’ to turn it off. For the second led the user should enter character ‘Y’ as input through mobile to turn on or ‘y’ to turn it off. The last led which will be turned on if the user send input of character ‘G’ and to turn it off again enter character ‘g’ as input through mobile app, The user should wait 0.5 second before entering another character. UART Interrupt is used as soon as the user send data via Bluetooth, so data received in the interrupt service routine and transmitted via SPI communication to the second micro controller (SLAVE) which enable the SPI Receive interrupt enabled as soon as the SPIF flag is set.

Simulation:



Flow Chart:


Master
Initialize
1)SPI
2)Bluetooth
User sent data via
bluetooth
UART Receiver
Interrupt Enable
SPI Transmit data
SLAVE
Initialize
1)SPI
2)LED0
3)LED1
4)LED2
SPI Interrupt Enable
SPI Received data
LED1 ON
LED0 ON
LED2 ON