SMART HOME SYSTEM

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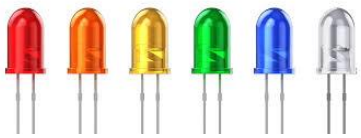
INTRODUCTION

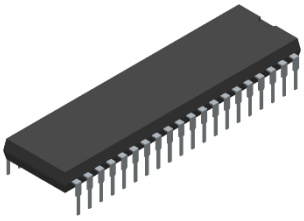
Embedded systems are critical in today's world. They enable designs and optimizations that allow us to enjoy the benefits of technology while minimizing cost and power consumption since they are purpose-built for certain applications. Home security and alarm systems use embedded technology to keep you, your family, and your belongings secure. Sensors detect when something is wrong, a microcontroller analyses the data, and an output system make up a sophisticated home alarm system. Many applications use embedded systems as the mobiles phones, DVD players, and digital cameras. Everything now adays uses embedded system.

MODULES

1. **LEDs**



2. **Atmega32**



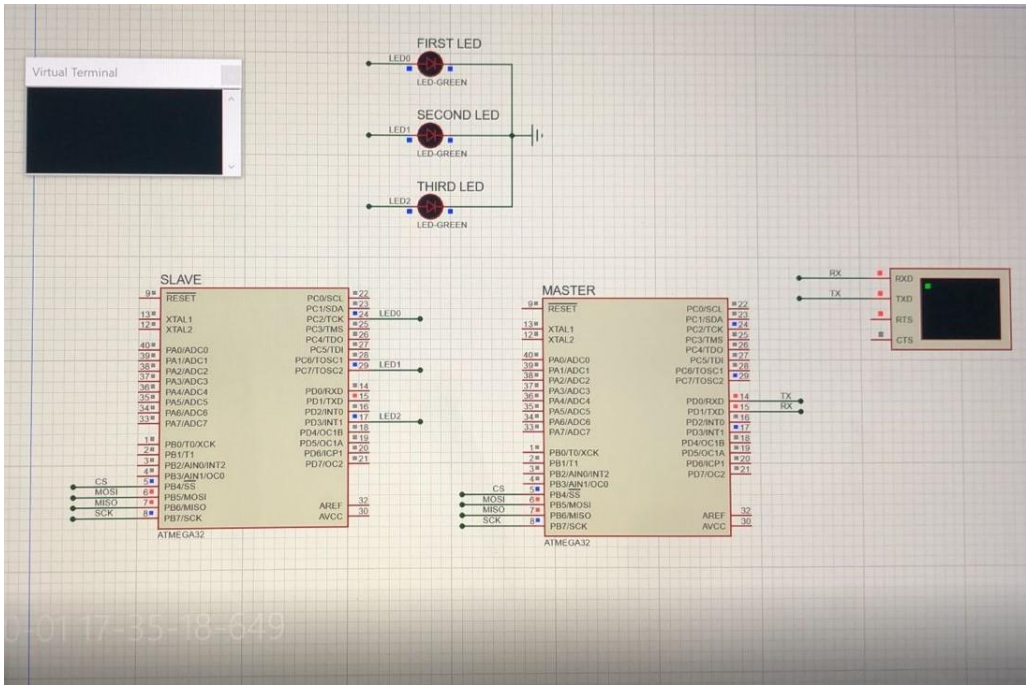
3. **Bluetooth Module**

PROJECT DESCRIPTION

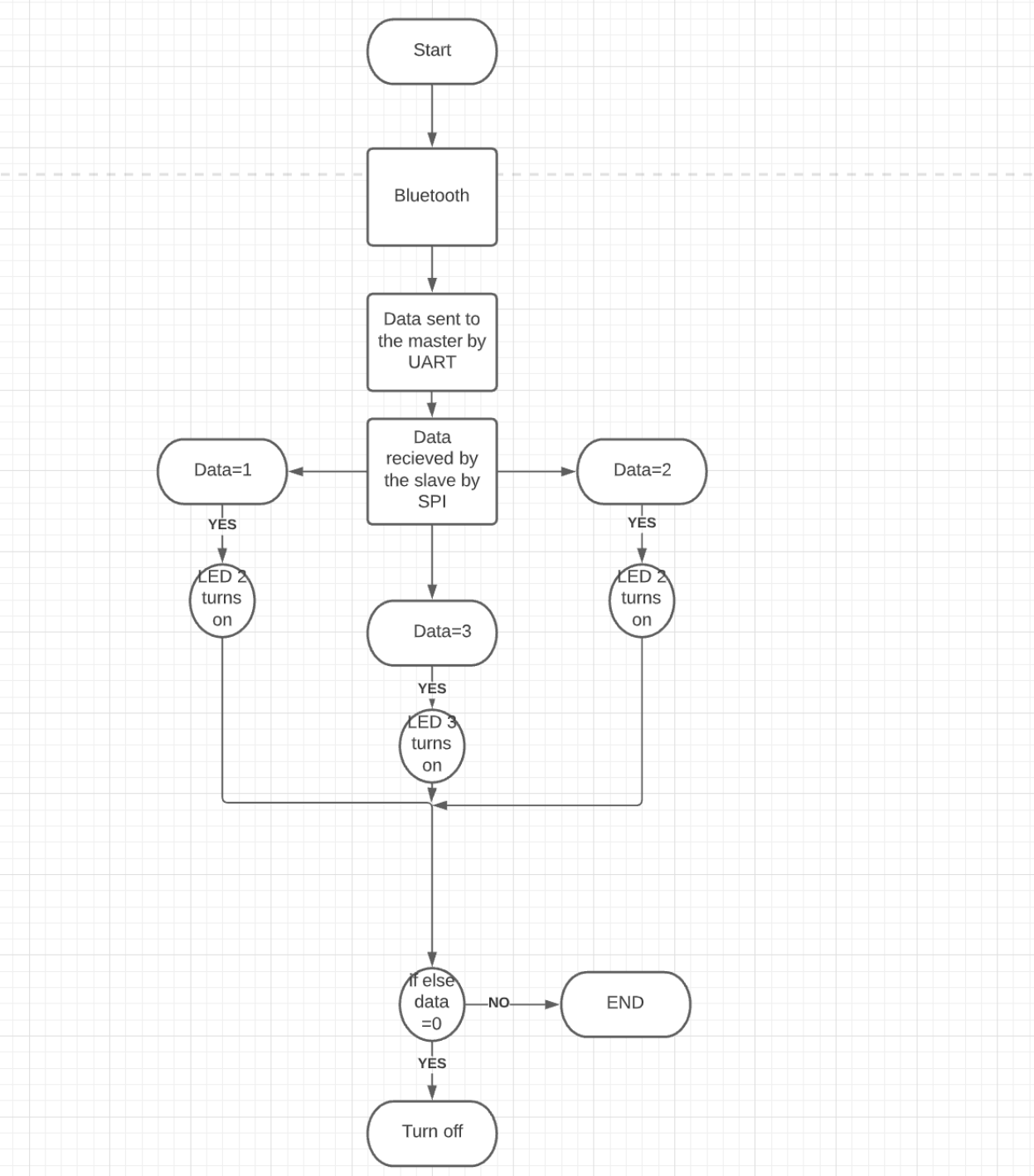
In this project you will be able to control 3 LEDs using your mobile phone. The smart home is mainly connecting microcontrollers to Bluetooth module then controlling the applications using mobile phone. 2 kits are used in the project: master and slave.

- Firstly, Bluetooth module connected to the master chip to send the data while connected using UART to the slave. Master is the transmitter.
- Secondly, the slave receives the data from master using SPI to turn on or off the LEDs. The slave is the receiver.
- Thirdly, connecting the mobile app to control the LEDs by typing 1,2,3 to turn LEDs on or retype 1,2,3 to turn LEDs off.
- 2 codes are used for the microcontrollers.
- If data received by UART is 1, led 1 turns on. If 1 is retyped the led turns off
- If data received by UART is 2, led 2 turns on. If 2 is retyped the led turns off
- If data received by UART is 3, led 3 turns on. If 3 is retyped the led turns off.
- This project is DIO layered architecture.

SCHEMATIC



FLOWCHART


Start
Bluetooth
Data sent to the master by UART
Data recieved by the slave by SPI
Data=1
Data=2
Data=3
YES
YES
YES
LED 2 turns on
LED 2 turns on
LED 3 turns on
If else data =0
NO
END
YES
Turn off