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Title: Home Automation System

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Title:

Embedded systems and Iot

Embedded systems refer to computer systems designed to perform specific functions within a larger device or system. They are typically composed of microcontrollers or microprocessors that are embedded into hardware and operate with limited resources. These systems are dedicated to performing a specific task, such as controlling machinery, monitoring sensors, or managing communication protocols.

Heading1 : Working Principle

HC 05/06 works on serial communication. Here the android app is designed to send serial data to the Bluetooth module when a certain button is pressed.

The Bluetooth module at the other end receives the data and sends it to Arduino through the TX pin of the Bluetooth module(RX pin of Arduino).

The Code fed to Arduino checks the received data and compares it based on which the relay works to perform the required task(on or off a signal).

Simultaneously push button works depending on the condition of LED to change it

Heading2 : Components Required:



Arduino UNO

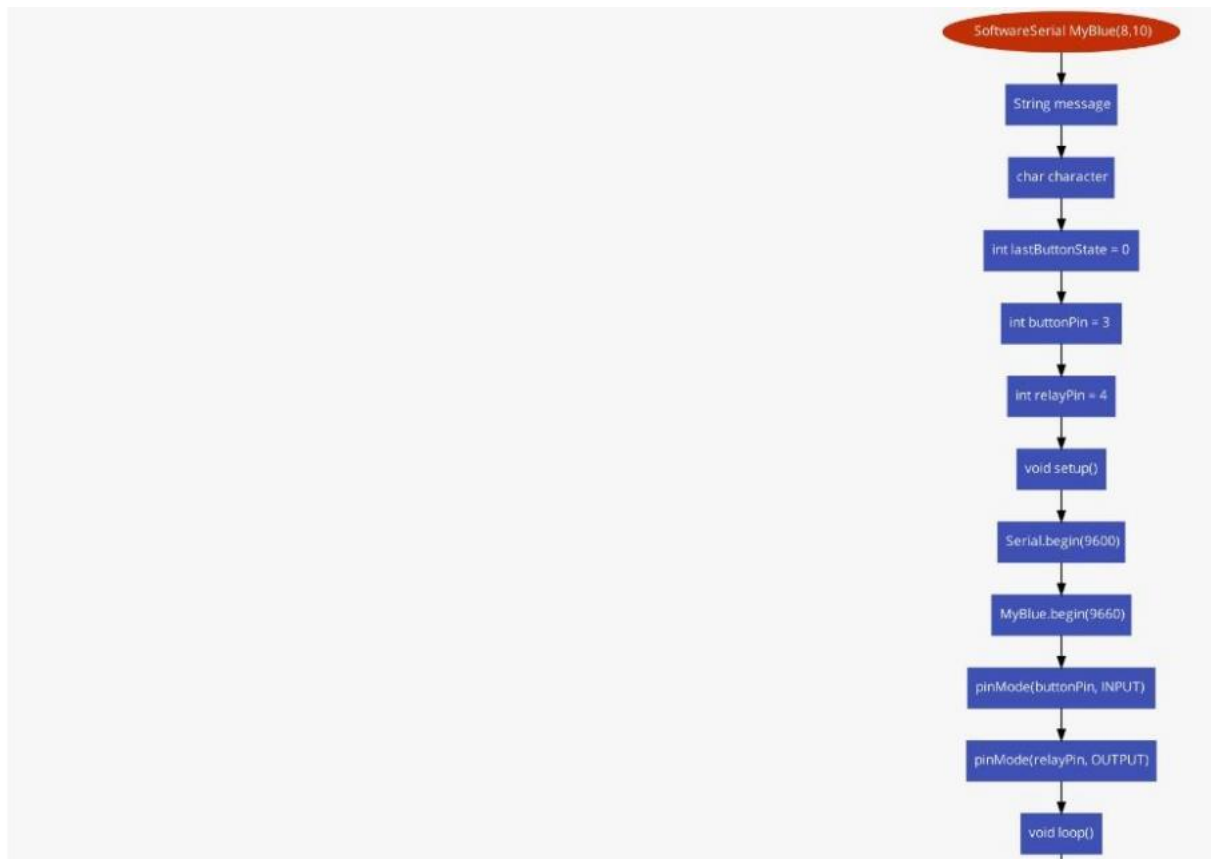


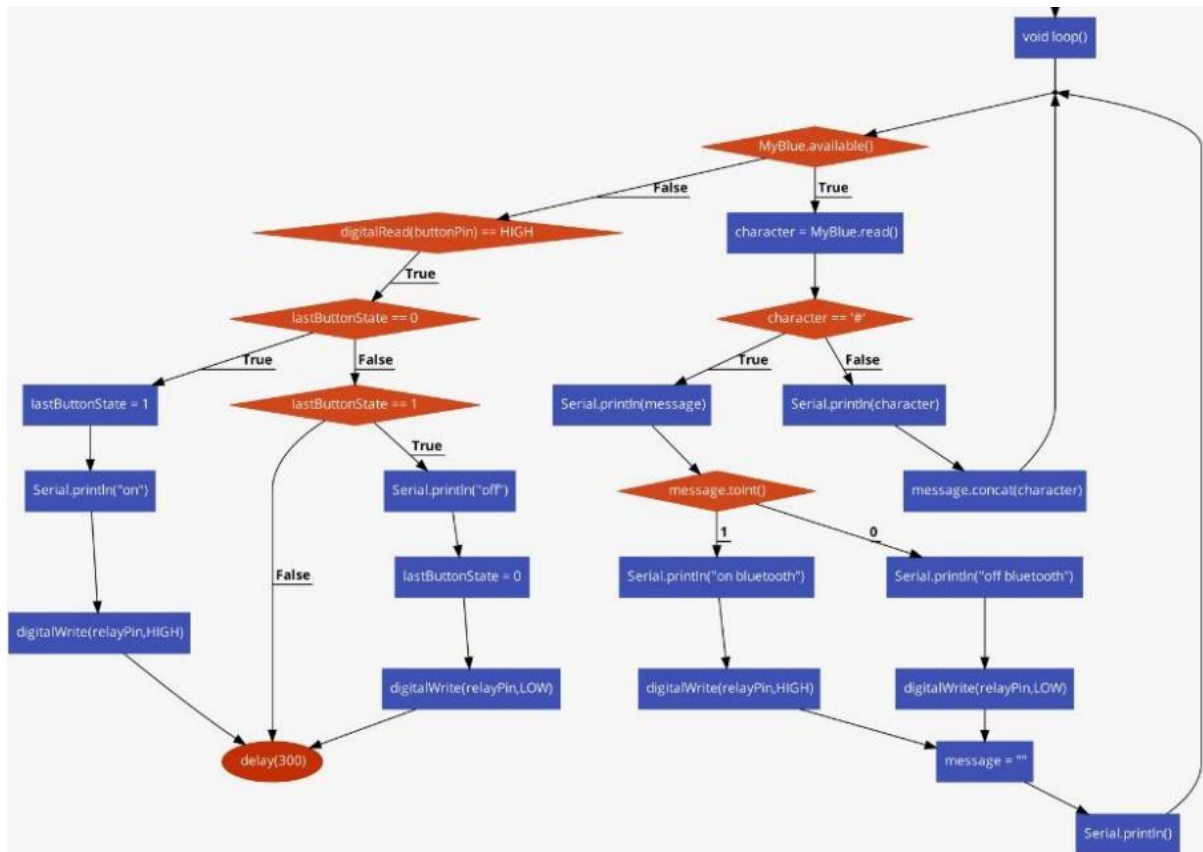
1 Channel Relay Module



HC05 Bluetooth Module

Heading3: Flow Chart





Heading 5: Challenges Faced

Had to know about the flowchart efficiently and tried to build a block diagram of the circuit.

Hence we searched about them in internet and used AI tools for better understanding .

The doubt session helped us to clarify the doubts regarding the project.

Heading 6: Conclusion

With the help of Raspberry Pi we can do IoT, Home automation, Robotics, Security system etc. IoT is deployed for Smart homes, Wearables (watches and bracelets), Smart Cars, Smart farming, Smart Retail, Smart Grids, Smart city, and smart healthcare. With such a broad spectrum of applications, the future of IoT looks more promising than ever before.

References:

<https://www.electronicsforu.com/technology-trends/tech-focus/role-iot-home-automation>

<https://www.slideshare.net/Aakashkumar276/project-report-on-home-automation-using-by-bluetooth>

