Table Of Content:

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 : Project Description Usage

We will turn on the relay using two ways:

1. Using a push button
2. Using Bluetooth

In this project, a Bluetooth controlled switch system is designed which can be controlled by any smartphone. The system connects with the smartphone through Bluetooth. The smart phone sends control signals to switch ON or OFF by an android app through Bluetooth interface.

Heading2 : Software Description

Arduino IDE :

Arduino UNO is a microcontroller board based on the ATmega328P. It has 14 digital input/output pins (of which 6 can be used as PWM outputs), 6 analog inputs, a 16 MHz ceramic resonator, a USB connection, a power jack, an ICSP header and a reset button. It contains everything needed to support the microcontroller; simply connect it to a computer with a USB cable or power it with a AC-to-DC adapter or battery to get started. You can tinker with your UNO without worrying too much about doing something wrong, worst case scenario you can replace the chip for a few dollars and start over again.

ATmega328P :

The classic high-performance, low-power AVR® microcontroller.

Replaceable chip:

The ATmega328P can easily be replaced, as it is not soldered to the board.

EEPROM:

The ATmega328P also features 1kb of EEPROM, a memory which is not erased when powered off.

Battery Connector:

The Arduino UNO features a barrel plug connector, that works great with a standard 9V battery

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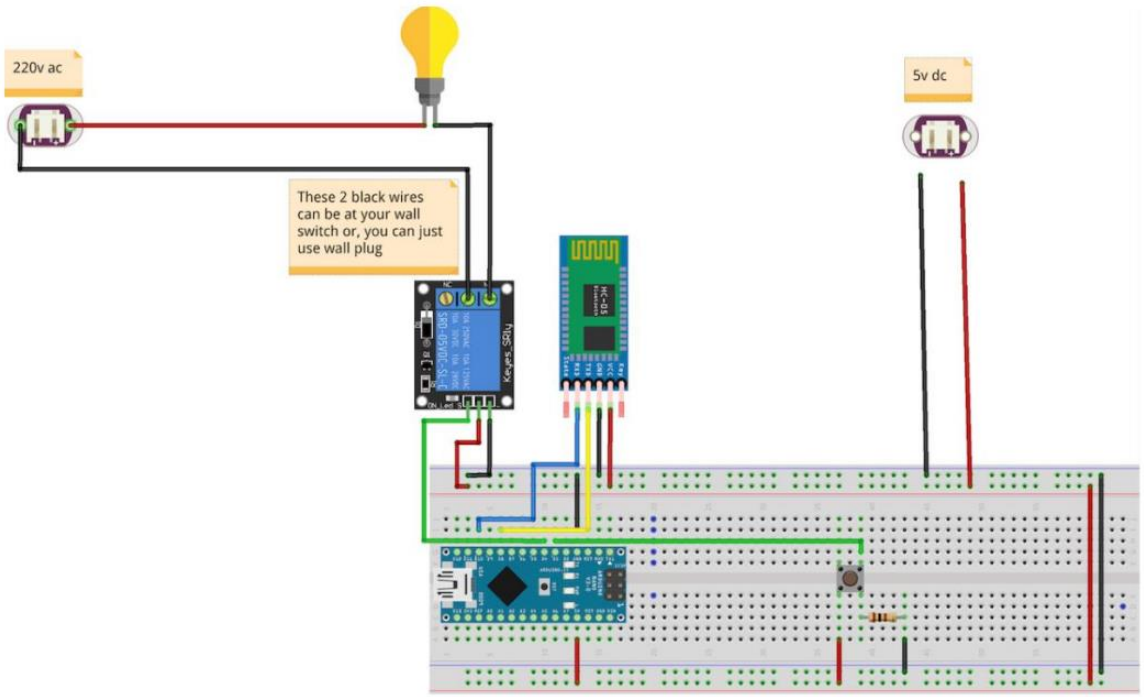
Heading3: Circuit Schematic Diagram



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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.

The Software Description is searched from google and other resources.

Heading 6: Conclusion

With trhe help of Rasberry 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:

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