AUTO-ROOM

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ABSTRACT:-

The main purpose of this project is to create a Room automation system using the Arduino board and control it via Bluetooth from any Android smartphone. As technology advances, Rooms become smarter. Today's Rooms are slowly shifting from traditional switches to centralized control systems, including remote controls. Changes to traditional walls are now located in many parts of the building, making it difficult for users to get close to their work. It goes without saying that this is more difficult for the elderly or physically disabled. Remote control of Room automation systems via smartphones offers the most modern solutions. For this, the Bluetooth module is connected to the Arduino board on the receiving side, and on the sending side, the GUI application of the phone sends the on/off command to the receiver connected to the load. Payloads can be remotely activated /deactivated by tapping a selected area in the GUI using this technology. The load is made by the Arduino board using opto-isolator and thyristor using triac.

Keywords:- *ArduinoNano, 4-Channel Relay5v Module, IR receiver*

INTRODUCTION:

With the development of IoT concepts in recent years, room automation has become popular. Although home automation is a technology, home automation is a new development that is slowly becoming accepted by consumers. Room automation involves monitoring and controlling functions such as lighting, heating, ventilation and air conditioning (HVAC), appliances, audio systems, security cameras, door locks and alarms. Room automation has many benefits, including comfort, greater security and energy efficiency. Figure 1 shows the overall automation unit.

In this picture you can see the security sensors, temperature sensors, etc. in the room. Many devices that can control the network from the central control panel are shown, such as:
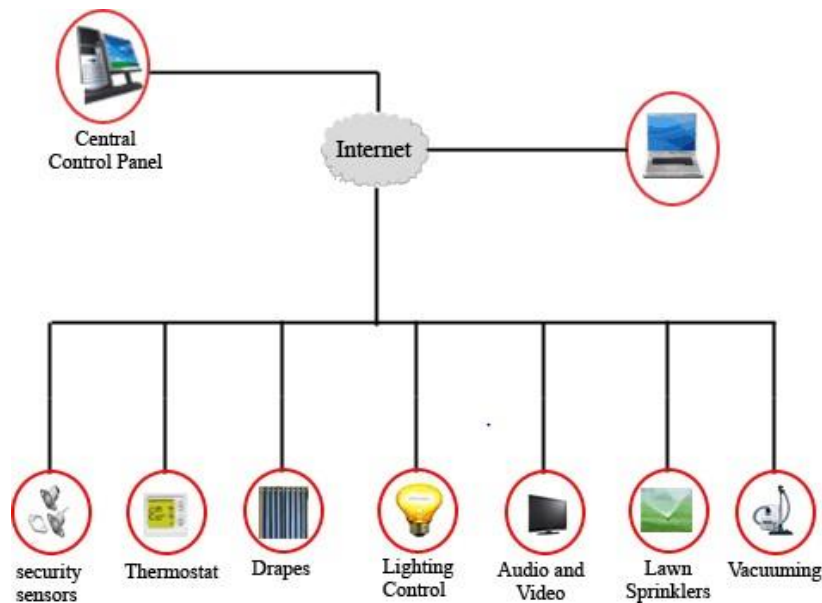
Room automation seems to be used a lot in cold cities like Milwaukee, where people turn off the heat when they leave their homes and turn it on for 15 minutes before returning. This system is called HVAC and is the best choice for room automation.

In the age of wireless technologies such as Bluetooth, WiFi, Zigbee and GSM, users expect their room devices to connect wirelessly. Each of these technologies has its own meaning and characteristics. The smart plan uses Bluetooth with a frequency of 2400 Hz, a range of 100 meters and a speed of about 3 Mbps.

There are some issues that need to be addressed when installing a room automation system. The system needs to be designed to integrate new tools so that it does not cause problems later. On the host side, the system needs to be user-friendly so that the device can be easily monitored and controlled. The system interface should provide diagnostic services if a problem arises in the future. Finally, the system must be affordable so that it can be widely used by everyone in the market.

WORKING:-

Room automation refers to automatic control of the room. These devices are connected to the internet and can be controlled remotely. With room automation, devices operate independently, so you don't need to control them through an app or voice assistant. For example, you can have your lights turn off when you normally fall asleep or turn on your air conditioner's thermostat about an hour before you return to work. Room automation makes life easier and saves you money on heating, cooling and electricity bills. Room automation can increase security through IoT devices such as security cameras and systems.

WiFi: WiFi is by far the most common control system; this means your IoT devices will use the internet provided by your network provider as usual. Note that although this does not require an additional hub, it will slow down your internet speed, especially if you are setting up many different IoT devices at the same time. Transmission and reception will occur on Earth using the 2.4 GHz frequency. Access via our channels. Data transfer rate is up to one megabit per second.

ADVANTAGES:-

➢ Energy Efficiency

➢ Customization and Integration

➢ Comfort Optimization

➢ Safety The ability to control small appliances and lighting with your fingertips anywhere you are will add safety in your Room. You can make sure appliances are off when its needed to be off and on when its needed to be on.

➢ Monitor your energy consumption

➢ Simplicity and Convenience

➢ Increases pleasure and self-awareness

FUTURE SCOPE:-

Electric generators contribute to a greener future by helping reduce energy waste. The future of Room automation in India is promising. With advancement in technology, increased internet usage and focus on sustainability, the Indian economy is poised to grow. Room Automation is creating new automation technologies for houses that will make them smart using internet-based technologies. These Rooms/houses that use Room automation technologies are smart Rooms. This field of Room automation is fastly emerging in technology making Rooms safer and better places to live. These features help users to virtually monitor and control Room attributes like lights, entertainment systems, security, climate control, etc.

CONCLUSION:-

As the name suggests, "Auto- Room" technology makes the system more flexible than other Room automation systems and offers attractive advantages to the customer. In this system, we integrate mobile devices into the Room automation system. A new Room automation system architecture is proposed using new communication technology. The system generally consists of three parts: Bluetooth module, Arduino microcontroller and relay circuit. WIFI works as a communication between Android phone and Arduino microcontroller. We disguise the complexity of the ideas involved in Room automation systems by incorporating them into a simple but highly connected process. This flexibility needs to fit as much functionality as possible into the limited space provided by mobile devices.

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