

# Control Electric Devices by using Android Phone. (Home Automation)

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**ABSTRACT** - This paper presents a low cost flexible and reliable home monitoring and control system with additional security using ESP32, with IP connectivity through local Bluetooth for accessing and controlling devices by formal user remotely using android smart phone application. This system is server selfgoverning and uses internet of things to control human desired appliances starting from industrialized machine to user goods. Home monitoring and device control system not only refers to decrease human efforts but also save the energy and time competence. To demonstrate the effectiveness and feasibility of this system, in this we presents a home monitoring system by using ESP32 module. It helps the user to monitor various conditions in the home like room temperature, gas leakage, water levels in the tank and person detection and control various appliances such as light, fan, motor, gas knob and take decision based on the feedback of sensors remotely

**KEY WORDS** : ESP32, Internet of Things (IoT), Bluetooth network, Relay Module.

## INTRODUCTION

The day by day innovation improved from automatic machine to customer products. IoT is another pattern advancement that empowers us to screen and control hardware devices through the web. Here we propose to use IoT in order to screen and control home apparatuses, in this way computerizing present day homes through a web. This proposed framework enables a consumer to effortlessly control these home apparatuses through the web. The undertaking proposes a capable usage for IoT utilized for checking and controlling the home apparatuses by means of World Wide Web. Home robotization framework utilizes the reasonable gadgets as a UI. They can likewise speak with home computerization organize through an Internet access, by strategies for low power correspondence traditions like Zigbee, Wi-Fi, etc. This endeavor goes for controlling home machines by methods for Smartphone using Wi-Fi as correspondence tradition and raspberry pi as server structure. The IoT based Monitoring and Controlling System for home is a

progression which can control and screen gadgets not just for home mechanization but any real life appliances remotely. It provides facility to have control over a wide range of home appliances and ensure securities.

In this project we presented implementation of home automation system through the Wi-Fi module, Massachusetts Institute of Technology (MIT) app. and Webpage server using ESP32. This project monitors all home appliances such as light, fan and controlled based on the threshold value programmed in the ESP 32. The System is low cost, allowing additional home appliances. Home monitoring and device controlling without involvement of humans the system can be control the devices, So that we can save the time and energy levels. So now we have introducing this system. The fig.1 shows the architecture of the system here we are using the four sensors and four devices for the home appliances for monitoring and controlling devices for the home respectively. The data can be sending to open source cloud storage for the store the data and use the MIT app Inventor for display the status of the sensors

## LITERATURE SURVEY

**1.Paper name:** Internet of Things Based Home Monitoring and Device Control Using Esp32

**Author:** V. Pravalika, Ch. Rajendra Prasad

The authors presented design and development of control of home appliances system through the Wi-Fi module, webpage server and Arduino. The user communicates with arduino through internet via Wi-Fi network. In Based on SMS/GPRS cell phone and inserted module including oneself sorted out home computerization framework, it tends to be coordinated to permit the client end to screen and control the gadgets for the home apparatuses by means of sent the message however the portable phone.

## 2.Paper name: Smart Energy Efficient Home Automation System Using IOT

**Author:** Asst. Prof Shaik Fareed Ahmed, Mohammed Abdul

In This Paper ,Human-machine interaction (HMI) has become, the more realistic in day-to-day life due to the advancement in the technology. Today, HMI research has moved one step ahead and switched on to the Internet, which was previously used for communication and now used for things, i.e., IoT (Internet of Things). **3.Paper name:** Control of Home Appliances using IoT.

**Author:** S. Dey, A. Roy and S. Das

In This Ppaper, All these are connected using Wi-Fi mesh. The devices can be accessed through a webpage from any device. The mesh protocol is one of the safest and most reliable protocols for our system. It allows us to connect all the devices to each other.

## METHODS AND TECHNIQUE

**Relay Module:** In this project relay is an important component and which is employed to control high voltage home appliances. We employed 5V four channel relay to control four appliances. This is having four controlling inputs, Vcc, GND and four outputs. The outputs of relay are connected to four appliances and these are controlled by using control inputs which are connected to four digital output pins of ESP 32.

**ESP32:** It is a less-cost, little power system on a chip microcontroller with included Wi-Fi and dual mode Bluetooth. The ESP32 is the heart of the project. It is a microcontroller board used to connect all the sensors. The board is programmed with the source code in order to perform the operations of the project. The source code is stored in the on-chip memory available on the ESP32. This block can be considered as an interface between the programmer and the user. So, it is considered as the heart of the project. The ESP32 operating voltage range is 2.2 to 3.6V. Under normal operation the ESP32 thing will power the chip at 3.3V.

Fig 1: Structured outline of Proposed system

## PROPOSED SYSTEM

In Proposed system The system consist of a four sensors temperature sensor, PIR sensor, gas sensor, water level sensor and using the ESP32 module. By using an IoT the ESP32 send the commands to cloud storage things speak. The cloud storage things speak it will receive the commands and shows the response. The system it is also using the MIT app inventor it shows the sensor status. When the internet is not available the system uses the buzzer it will give audio signaling when the water level reaches the threshold value and when the person entering into the home. The planned framework screen the sensor information, similar to temperature, gas, light, movement sensors, yet additionally activates a procedure as per the prerequisite, for instance exchanging on the globe when it gets dull.

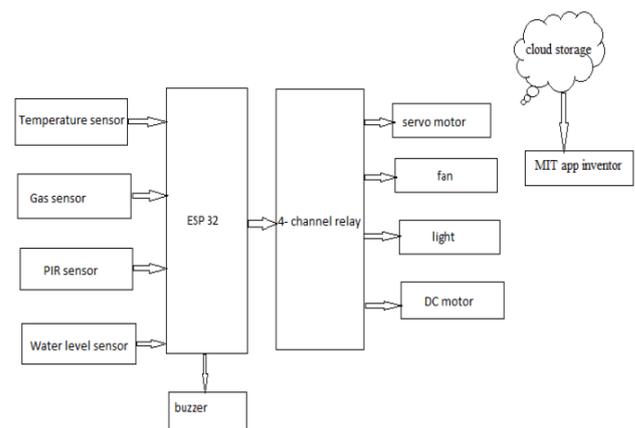


Fig.2. Block diagram of the proposed system

The software implementation of the proposed system. This system monitors the temperature value, water level in the tank, gas leakage and person detection values. If the temperature value exceed then the threshold value fan on else fan off the value store in the cloud. If the water level reaches the threshold value turn off motor or buzzer on the values stores in the cloud. If when the gas leaks in the home turn servo the values store to the cloud. If the person is detected buzzer on goes to cloud else the value store in cloud. The values should be display on the MIT app inventor (dashboard).

## RESULTS



## CONCLUSION

We presented a system which can monitor and control multi devices at home using IoT. This proposed system improves the performance of various devices at home by controlling automatically and remotely. The system works in three phases. In the first phase, the system monitors temperature, gas leakage, water level of the tank, and person detection and uploads the data to the cloud (things speak) and mobile app (MIT app inventor). In the second phase, the system automatically controls the motor pump and gas knob when the water level reaches the maximum and gas leakage is detected respectively. In the third phase, the user can control home appliances like fan, light, etc. using a mobile app. The system is built using a low-cost embedded microcontroller with a WiFi module ESP32. The developed

system cost is low, simple to operate and is easily embedded with home appliances.

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