

IOT Based Smart Geyser

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ABSTRACT: This paper presents a novel way to interact with water heating geysers based on Internet Of Things(IOT), in which water heating geysers are monitored by the digital display. The tank temperature, water supply, water consumption, inlet, outlet, tank temperatures and threshold point are controlled by IOT. The proposed framework additionally gives assurance against unavoidable mechanical disappointment of the water warmer, by recognizing breaks and blasts, and by halting water and power supply in such situations. This paper shows that the evidence of idea is feasible as far as usefulness and vitality reserve funds.

I. INTRODUCTION

An IOT based smart geyser is the one which shows the water temperature in a digital form and also can control the temperature by setting a threshold value according to the users need. In this project, we propose a geyser connected with IOT where we can set certain threshold value to ensure that the water doesn't get overheated nor less heated.

In this project, we have a geyser which is connected to IOT, where we can set the threshold value in advance, once the value is attained, the relay switches OFF the geyser & we can monitor the temperature of the water in LCD monitor via blynk application.

II. PROPOSED METHOD

As we all know geysers are used in our day to day life, people are using this only as approximation usage of ON/OFF which leads to certain disadvantage of overheating or less heating. In the case of overheating, which leads to excess use of electricity as well, so in order to reduce that problem we have introduced a IOT based smart geyser. By using IOT, we can set the threshold point that is needed for the user. Node MCU ESP8266 when connected with a blynk application presented in the user's mobile can be operated from any part of the world by the user to set what temperature the user needs. Once the threshold point is set, the relay starts to function and supply the current to the spring heater and it starts to heat the water, and when the water temperature reaches the set threshold point, the temperature sensor DS18B20 senses and indicates through the blynk application, and the relay switches OFF the geyser as well the buzzer also indicates the user that the fixed temperature is been attained.

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III.METHODOLOGY

A. BLOCK DIAGRAM

BLOCK DIAGRAM:

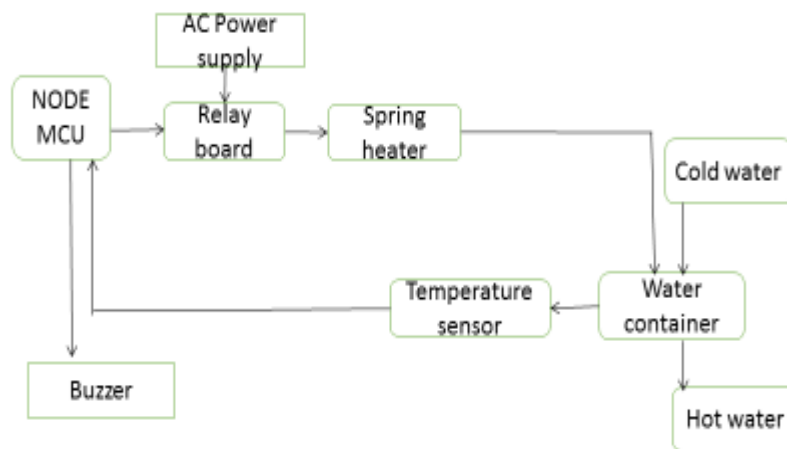


Fig 1. Block diagram

1.NODE MCU

Hub MCU The ESP8266 is a minimal effort Wi-Fi microchip with full TCP/IP stack and microcontroller capacity delivered by Espressif Systems.. It is a 32 bit microcontroller, CPU of 80 MegaHertz(default) or 160 MegaHertz and memory of 32Kib instructions , 80Kib user data. It has 16 GPIO pins. The ESP8285 is an ESP8266 with a 1MB of implicit glimmer, permitting a solitary chip gadgets equipped for associating with Wi-Fi.

PROCESSOR: L 106 32 bit RISC microprocessor core based on the TENSILA xtensa diamond standard

MEMORY:

- 32 KIB instruction RAM
- 32 KIB instruction cache RAM
- 80 KIB user data RAM
- 16 KIB ETS system data RAM
- External QSPI FLASH: Upto 16Mib supported (512 KIB to 4MIB typically included)

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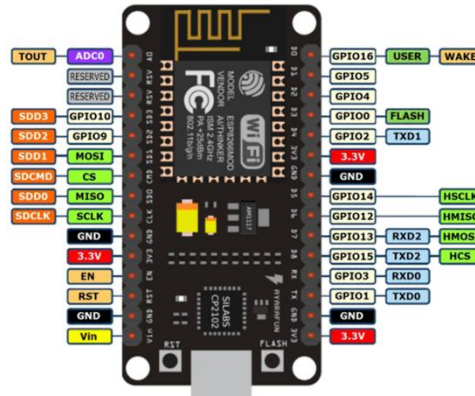


Fig.2.Pin Specification of NODE MCU

2. RELAY

A Relay is an electrically worked switch. It comprise of a lot of information terminals for a solitary or various control flags, a lot of working contact terminals. The switch may have any number of contact structures, for example, to make break contacts or mixes there of.



Fig:3 RELAY

3. BLYNK APP

Blynk is another stage that permits you to rapidly manufacture interfaces for controlling and observing your equipment ventures from your ios and Android gadget. In the wake of downloading the blynk application, you can make a venture dashboard and organize catches , sliders , charts , and different gadgets onto the screen. Utilizing the gadgets, you can turn nails To and OFF or show information from sensors.

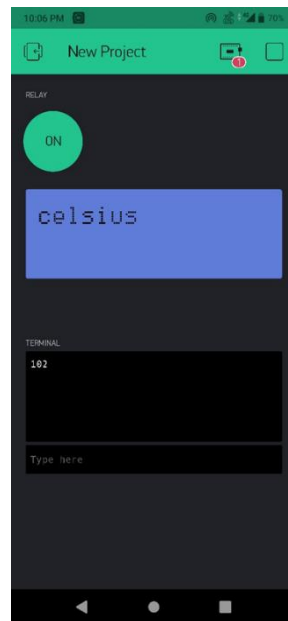


Fig.4.BLYNK APPLICATION

4. Temperature sensor

The DS18B20 advanced Thermometer gives 9 to 12 bit(configurable) temperature readings which demonstrates the temperature of the gadget. This sensor has been remembered for some applications, for example, Thermostatic Control, Industrial Systems, Consumer Products, Thermally Sensitive Systems. Highlights: POWER RANGE:3.0 TO 5.5V Converts 12 piece temperature to computerized word in 750ms.

FEATURES:

POWER RANGE:3.0 TO 5.5V

Converts 12 bit temperature to digital word in 750 ms



Fig..5Picture of Bluetooth Module

5. BUZZER

A buzzer or beeper is a sound flagging gadget which might be mechanical, electromechanical or piezo electric. Typical uses of buzzers include alarm devices, timers, and confirmation of user input such as mouse click or key stroke.

The main applications are :

1. Novelty uses
2. Judging panels
3. Educational purposes
4. Electronic metrometers
5. Electrical alarms



Fig.6 Picture of Buzzer

IV. EXPERIMENTAL SETUP AND RESULT

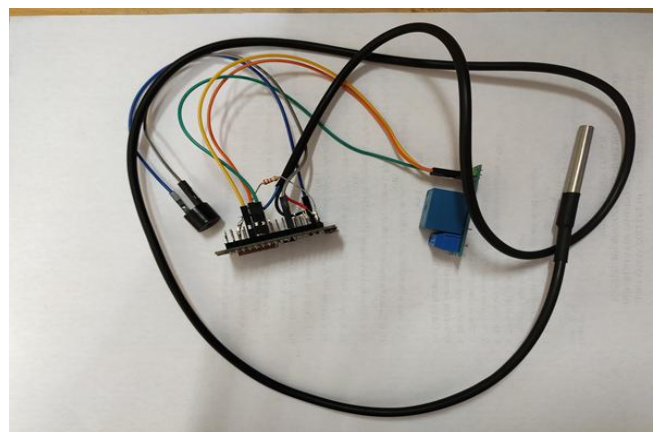


Fig 7. Experimental setup

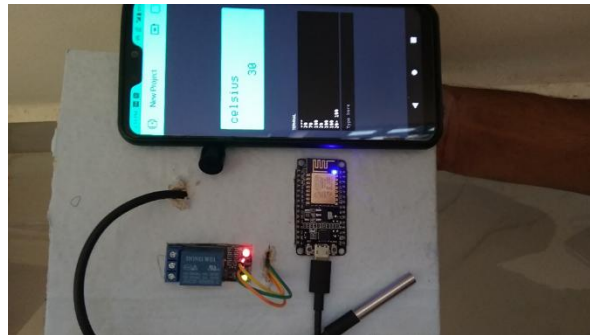


Fig.8 RESULT

V. CONCLUSION

In this project, we have successfully designed and implemented a “IOT BASED SMART GEYSER”. This project is implemented by interfacing the geyser with the user’s mobile phone by using blynk application to operate the geyser and set the threshold point that the water needed to be heated according to the user’s need. The main objective of our project is to save electricity and to make exact heating of water has been done successfully. When compared to the existing, this is way far better because the older one has only approximation ON/OFF. The cost is efficient and the IOT is an easily accesible one and it widely used one around the globe, so we preferred IOT for this project.

The future enhancement of this project is that we can use this concept of reading the temperature for industrial purposes mainly in power plants so that we can save a huge amount of money, work , production if there is a damage of power plant equipments due overheating. This can be as a cause for major revolution in the household appliance because of the fast moving world as people want everything as automated and done quickly this can be a best suited one for all users and for their needs.

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