2022 年臺灣國際科學展覽會
優勝作品專輯

作品編號 **100045**

參展科別 工程學

作品名稱 **IoT based automatic water temperature adjustor**

得獎獎項

國　　家 **Nepal**

就讀學校 **Brainycube Research Organization**

指導教師 **Akash Deo**

作者姓名 **Sabin Shrestha**

關鍵詞 **IoT，Arduino，DHT11**

作者照片

Abstract:

This paper represents IOT Based Automatic Water Temperature Adjustor. IoT (Internet of Things) refers to the network of physical objects that are embedded with sensors, software, and other technologies for the purpose of connecting and exchanging data with other devices and systems over the internet. This system is for adjusting water temperature according to the possible surroundings such as home temperature, atmosphere temperature, etc. To solve problems like high water temperature while using, time-consuming waiting for water to heat and cool, high power consumption, and not satisfying water temperature this system offers the feature for automatically adjusting the temperature. Arduino, DHT11 (Temperature-Humidity Sensor), Bread Board, DS18B20 (Water Temperature Sensor), Jumper Wires, Resistor, I2C OLED, Water Heating Coil, Relay and LED are used for operating this system. The application of this system is very vast as it can be implemented in power plants, hospitals, mountain regions, local homes, and lodges. This system is time saving, cost-efficient, easy for implementation, provide automatic features, less power consumption, safety, and many more. Compared to other water geyser systems it has the feature of automatically detecting the environmental temperature and adjusting the temperature of the water accordingly. This system is still in its developing phase.

【評語】100045

This work is aimed to realize an automated water temperature adjuster, by measuring ambient temperature as a reference for heating control. The feedback control loop works. However, usually the temperature of the water for human consumption is determined based on human body temperature, ~36 degree Celcius, a rather fixed number. There seems lillte need to control the water temperature based on ambient temperature. If human body temperature is used as the reference, a very simple feedback loop will be sufficient, much like in the frequently used water dispensers with temperature control.

Additionally, the following engineering issues should also be addressed.

1. Please estimate the overall power consumption and compare with other systems.

2. Please estimate the time constant of the system and compare with other systems.

3. Please estimate the cost and compare with other systems.

4. The system implements feedback control based on ambient temperature. However, it does not seem to relate to IoT.