
Methods of Temperature Management and Control at the Interface of Technological System Applications

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Abstract: It is becoming increasingly necessary to control temperature through the automated interface of a technological system, be it in industrial, commercial or residential environments, temperature balance is important. Likewise, technology has become a common tool in everyday life. So, technologies need to be approached in modern ways and creates, changes, improves, accompanies progress in process management in many areas and works on the basis of a technological system an application interface must be created that can be used alongside these processes on mobile devices. Therefore, through this article, we suggest environmental temperature monitoring and Bluetooth wireless connection and mobile phone interface display we use an application developed in MIT App Inventor. This is when executing commands through the program hardware and software used room temperature reduction procedure vai the room temperature balance is ensured through the ventilation system. Data is collected through system-based applications and temperature sensor and wireless communication through the app. Bluetooth module both will be connected to the Arduino development board. The refrigerator can be conditioned to operate according to a preset temperature. The range is set using its IDE (Integrated Development Environment). So that's it the project is a cheap and useful alternative to temperature control and A technological system can be a monitoring method supported by development.

Keywords: Temperature control, temperature display sensor, innovation in temperature control, mobile application in the system, development boards in the system, use of wireless communication tools in the technological system.

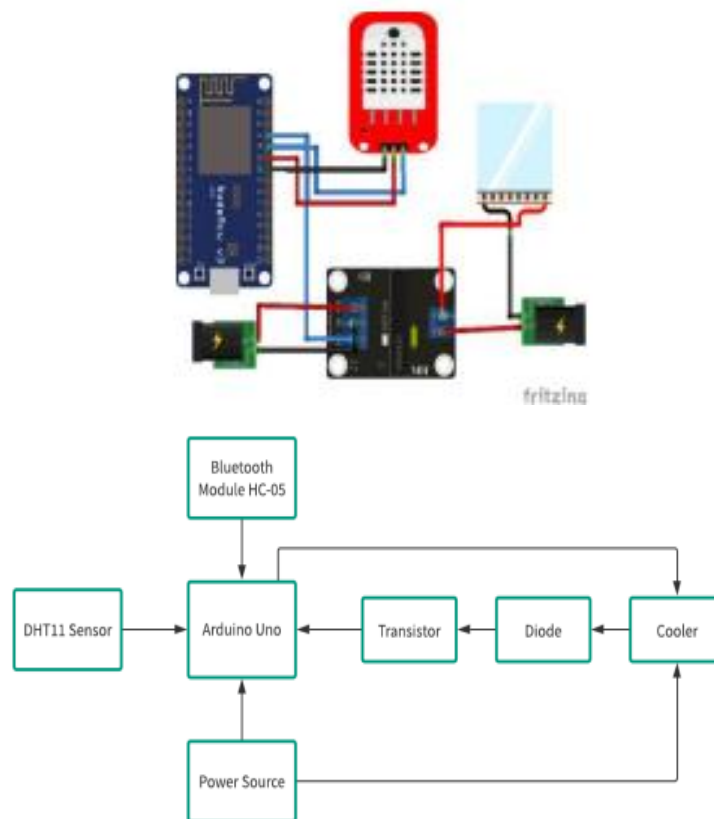
Introduction

Temperature control is usually carried out in a technological system and used in process, object inspection and evaluation of specific conditions. A monitoring system is an action it is based on the results of the processes done to find out something about the actual planning or information recovery system. This monitoring provides information on the status and trend of repeated observations and shows the values of the assessments over time. Monitoring is usually done to check the process, object and evaluates certain conditions. This system is also used to take corrective action for all provisioning and resources are used as effectively and efficiently as possible. The monitoring process is routine implements the process of collecting data and measuring progress toward program or activity goals. Previous studies have conducted research using Internet of Things (IoT) technology for tracking and studies were conducted to ensure the temperature balance in the egg incubator. In this study, the temperature data is obtained from the sensor and then assembled into a microcontroller and then sent to the internet. Test results show that the temperature value can be read in real time using the IoT platform Blynk and can be monitored through applications on a smartphone. The Internet of Things (IoT) is a concept in which an object has the ability to transmit and creates the ability to access and create information across a network without requiring human-to-human or human-to-computer interaction. IoT is it a concept that aims to extend the benefits of a seamless internet connection that connects machines, equipment and other

physical objects with network sensors and actuators for data acquisition and regulates its activities (independently). This is a study looking at the problems of microclimatic conditions on the basis of the system it is designed to make a tool that has the ability to make microclimatic conditions. Where this tool is able to monitor the temperature if the temperature does not match, the system application temperature control indicator results will change. These are with the help of the blynk application; devices can be monitored and controlled remotely via a smartphone Accessible using IoT technology. In relation to the industrial metallurgical sector described in the previous paragraph, It was reported that mechanical, electrical and electronic systems are used process control options are shown as examples, which are used in industry. sensors such as contact thermocouple, infrared thermometer, contact pyrometer and digital or analog in cases where thermometers are used, the effectiveness of these control methods can be compromised large product requirements or specific process performance eg: controlled Temperature control of 100 tons of liquid steel volume or temperature with rod the speed is 200 m/s. The need to develop control and innovate with technological development production processes in many industries have made the creation of mobile communication a necessity forms application management. Simply put, a mobile app is purpose-built software entertaining, facilitating and connecting the user intuitively and easily becomes an access platform. On various devices, for example, smartphones and Android and IOS tablets and smart TVs, these programs help people. Informed advantages provided by wireless communication, the possibility of mobile communication The program to control the temperature was an alternative. Data communication can be done in many ways by radio, satellite, microwave ovens. infrared, 4G, 5G, Wi-Fi and bluetooth are used. The last wireless connection is, transmits the necessary data between devices, if there is a distance between them short means it depends on the proximity of the devices.

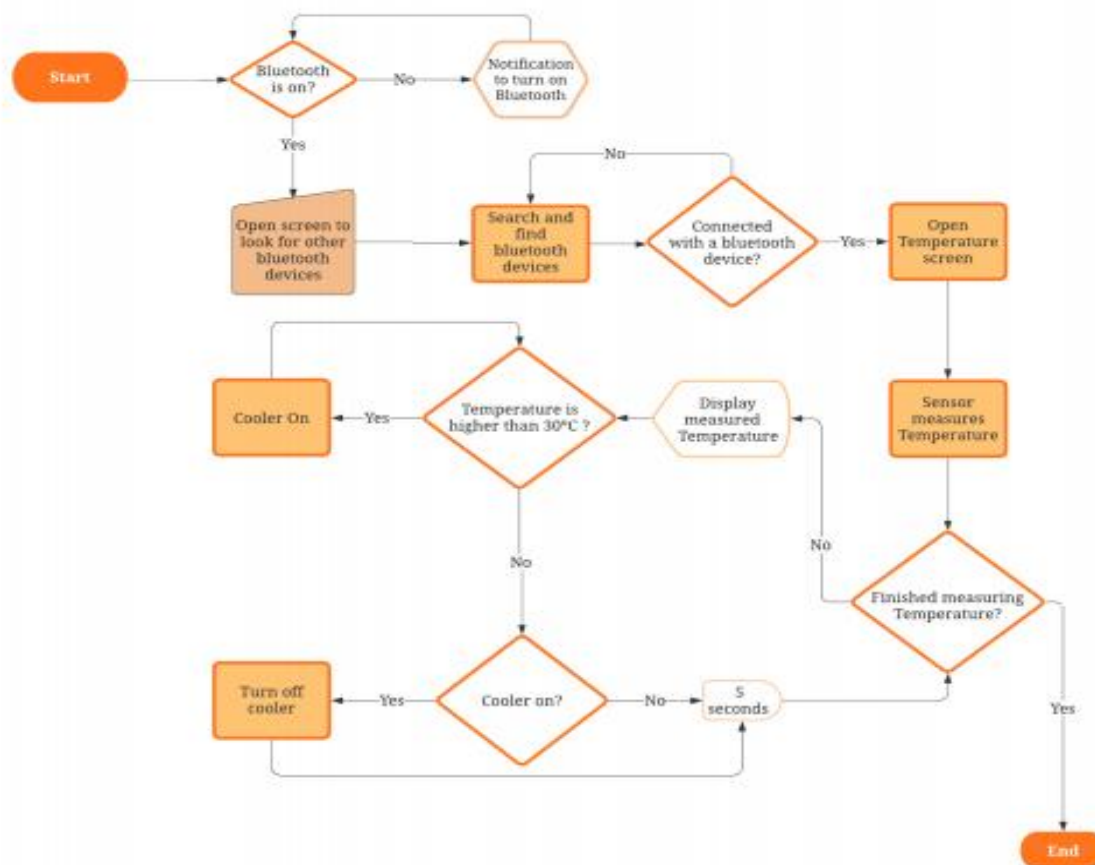
Materials and methodology

The research proposal is to monitor the temperature using a mobile application and Development boards and bluetooth communication are improved. Programming It uses Arduino and its open source IDE (Integrated Development Environment) and software is created. A monitored object temperature monitoring system is designed to help people determine temperature creates opportunities to control temperature conditions in the system. So it becomes easier for people in the process. Where there is other activity or other work, breeders are not needed. For example, the fear of leaving livestock in the pen because with this tool the breeders can control and maintains the temperature conditions in their livestock. Measurement of cage temperature parameters using the DHT22 sensor, the program is processed by the microcontroller. The temperature value is determined. Then to activate the on or off option the interface system application is also generated and connected to the NodeMCU module, so it can be configured. These are parameters are displayed on the smartphone screen through the blynk application and system communication is controlled using the Internet. Tool components are manufactured in-house so that the tool performs optimally. Placement the number of components is adapted to the use of these components. The sensor module components, relay module and power supply can be housed in a custom housing. This is for several technological processes creates conditions. After the components are arranged, the circuit for the temperature is drawn and a monitoring system is installed in this technological process. The schematic design of this circuit is an important part because it The components used in the microcontroller, such as DHT22, will be wired. As for the schematic image of the system, the module is created as follows.



Picture 1. Complete system structure

Blynk is a platform for mobile operating system (OS) applications that aim to manage Arduino and similar modules control over the internet. This the application can be used for hardware control, display of sensor data, data storage, visualization, and more. The ability of this application can store data and display numbers, colors or information visually and Graphics are generated remotely using Internet or intranet data communications. The Blynk app does this, it is possible to create interface projects with various input and output components that send and support and can receive data and provide data according to the selected component. Blynk server a cloud-based backend service entity responsible for managing communication between smartphone app and hardware environment are managed. The ability to manage dozens of things hardware devices at the same time facilitate IoT system developers. For the innovative development of the project described in the previous topic, an the interface was created using the MIT App Inventor platform. So the visual parts of it application is defined, button layouts and response boxes are set and formed in sensors. Meanwhile, a new screen appeared for aesthetic and organizational purposes created, this button is activated and its purpose is to select bluetooth and a device is found to connect to. Once the required elements for the application were identified, the code could be generated, to apply and establish its relationships with project components, It is presented in the flow chart in Picture. 2.



Picture 2. Processes built into the system interface

Conclusion

These technological processes have developed a low-cost system consisting of an electronic mobile application and devices and development boards used for temperature control are shown. Because of its low price application is viable in many commercial areas, logistics chains and industries and processes, transportation of products, and scientific research conducted in laboratories. Despite its combined innovative functionality, the project can still be improved therefore; it is more accessible, covers wider areas and is more developed functions are being improved. The highlighted innovation is described in the literature as starting stages already through the rapid development of individual parts to create new products existing infrastructure. About the developed system, Wi-Fi or Ethernet connection, in this way the necessary proximity can be built between the devices provided via bluetooth connection, no longer needed. Therefore, the project benefits from a system based on the IoT (Internet of Things) structure for control and electronic devices are controlled through a smart system. In addition, implement new commands to the application, such as increase and Temperature reduction with new buttons via IoT interface structure and ventilation facilities enrich the current project. That would be it becomes another system with remote temperature control easy-to-access interface, monitored and used in real time. Otelbayev Azizbek, a student of the Nukus Mining Institute under the Navoi State University of Mining and Technologies, is currently conducting scientific research on the optimization and automation of technological processes in mining processes, and the use of robotization processes in mining enterprises. Azizbek's interest in the technological activities of mining enterprises is very high. Otelbayev Azizbek's many articles about processes in mining enterprises were published in international magazines. Currently, Azizbek is promoting the use of the development stages of technologies in mining enterprises. which can further increase performance indicators. I wish Otelbayev Azizbek, a student of the Nukus Mining Institute,

good luck in his work and scientific research. Azizbek's articles on technologies and technological processes in mining enterprises were published in international magazines. He is very interested in technological processes, currently studying computer systems management, applications used in mining enterprises. Azizbek is a 4th year student and has been following the processes in mining enterprises for a long time. He is interested in mining and loading processes, flotation and beneficiation processes, and the structure of metal melting furnaces in mining enterprises.

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