ARDUINO BASED SMART IOT FOOD QUALITY MONITORING SYSTEM

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ABSTRACT:

Food safety and hygiene is a major concern in order to prevent the food wastage. The Quality of the food needs to be monitored and it must be prevented from rotting and decaying by the atmospheric factors like temperature, humidity and dark. Therefore, it is useful to deploy quality monitoring devices at food stores. These quality monitoring devices keep a watch on the environmental factor that cause or pace up decay of the food. Later, the environmental factors can be controlled like by refrigeration, vacuum storage etc.

In this project, a similar food quality monitoring device will be designed that will keep watch of environmental factors like temperature, humidity, alcohol content and exposure to light. The device is built on Arduino UNO which is a popular prototyping board. The Arduino board is interfaced with various sensors like DHT-11 to monitor temperature and humidity, MQ3 to detect alcohol content and LDR to measure exposure to light. This is an IoT device and sends the measured sensor data to an IoT platform. The ESP8266 Wi-Fi Modem is interfaced with the Arduino to connect it to the internet via Wi-Fi router. The sensor data is also displayed on a character LCD interfaced with the Arduino UNO. The IoT platform used for logging and monitoring of sensor data is Freeboard.io. With the power of Internet of Things, the environmental factors affecting the food storage can be monitored from anywhere, anytime and from any device.

Many such devices can be installed at a location for better monitoring and quality control. The Arduino Sketch running over the device implements the various functionalities of the project like reading sensor data, converting them into strings, displaying them on character LCD and passing them to the IoT platform. The Sketch is written, compiled and loaded using the Arduino IDE.

Introduction:

The food we consume can affect in any form of contamination that may occur due to storage or chemical changes within the food. There are several viruses and bacteria that causes food contamination and leads to numerous food borne diseases, for example Norovirus a very contagious virus caused by contaminated food or water. About 351,000 people die of food poisoning globally every year. In some countries, majority of people struggles on daily basis for food, due to preservation of foods and use of chemicals to artificially increase the time span of food causes people illness. It is necessary to develop a system that can help people to identify the freshness of food or quality of

food items.Our proposed system may give the good quality (freshness) management in food. It is based on electrical, and biosensors. Biosensors play a vital role to detect the bacterial contamination in food sample. Based on the combination of the sensor outputs quality of the food should be detected.

An embedded system is a combination of software and hardware to perform a dedicated task. Some of the main devices used in embedded products are Microprocessors and Microcontrollers. Microprocessors are commonly referred to as general purpose processors as they simply accept the inputs, process it and give the output. In contrast, a microcontroller not only accepts the data as inputs but also manipulates it, interfaces the data with various devices, controls the data and thus finally gives the result.

The "Automatic Speed Control and Accident Avoidance of Vehicles using Multi sensor" using Arduino microcontroller is an

exclusive project which is used to detect the smoke. We can use this project to reduce deaths of people due to smoke by using multi sensors.

PROPOSED METHOD:

The proposal through this project is to monitor the gas levels coming out of the food, when the food is about to get spoiled..The amount of the gas level released from the food is monitored through the gas sensors and converted into analog values to be displayed on the IoT platform to be monitored wherever required.The MQ gas series plays important role in this aim. However, different types of foods emit different types of gases when at the merge of getting spoilt. Furthur research is needed to be done in this context and the sensors are needed to be used accordingly.

RESULTS & DISCUSSIONS:
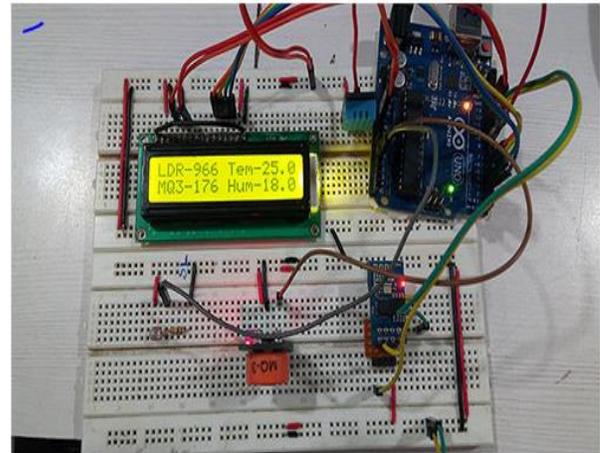
Applications

1. It is used in all Food Storage Companies.
2. Can be applied to GHMC refrigerators to prevent the wastage of food

Conclusion

Food poisoning has been the source of innumerable diseases, to reduce and avoid illness we use biosensors and electrical sensors to determine the freshness of household food items like diary, fruits, and meat.

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