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IOT EMPOWERED: AUTOMATING CONTACTLESS COVID TESTING BOOTHS FOR INSTANT RESULTS

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ABSTRACT: In view of the continuing epidemic, Covid testing is critical to disease control. The primary goal of this project is to create and deploy a fully automated, real-time, contactless Covid testing cubicle system that uses RFID technology to track individual data.In this project, a microcontroller is used. It serves as the initiative's central node. The operational input and output modules can effectively communicate with the onboard computer.To retrieve assembly instructions, controller memory is used. When the microcontroller receives data from the RFID reader, it will automatically send an SMS to the stored mobile number with sample collection information, test results, and tag details.In addition, the system sends audible and visible notifications via an LCD and alarm.

Covid testing is critical for limiting the infectious virus during the pandemic. Notably, this Covid testing is only undertaken at Covid testing centers; nonetheless, the manual testing approach has numerous limitations.This is because, despite the large volume of samples collected, some tests are prone to human mistake due to their lengthy execution and subsequent delays.

KEYWORDS:KVRmicrocontroller,Powersupply,RFIDtag,RFIDreader,WiFiESP8266module,GSMmodem,

1.INTRODUCTION

IoT technology is advancing at a rapid pace. The Internet of Things (IoT) is a network of physical devices that include sensors, electronics, software, and network connectivity.This allows for the sharing and gathering of data between diverse entities. We create a contactless testing kiosk system that can be used at any time to automatically test an individual for COVID-19.This project uses a microcontroller, which is an informal word for an onboard microprocessor.It serves as the initiative's central node. The operational input and output modules can effectively communicate with the onboard computer. Internal memory is set aside for the controller to store the code. This memory's purpose is to provide the controller with a set of assembly instructions.These assembly instructions are also required for the controller to function properly.

Because of the microcontroller's sensitivity to the interface between the RFID reader and GSM, careful consideration is essential when designing this system. Because of the limited area available to accommodate several pieces, every aspect must be carefully considered when building an interface circuit. Aside from that, constructing a single-sided board without routing cables over traces may prove difficult. The basic idea is to provide a contactless, completely automated COVID testing kiosk system that tracks individual information using RFID technology. By validating personal information such as names and Aadhar scan details, it effectively separates the test subject from the user. Furthermore, it lowers errors and speeds up the registration process through automation. After receiving data from the RFID Reader, the Micro Controller sends an SMS to the registered cellphone number. This SMS will include the individual's test results, tag information, and directions for sample collection. To address the epidemic more effectively, the Covid booth testing procedure was fully automated, making it faster, more secure, and error-free

2.LITERATURE SURVEY

Utilizing the Internet of Things. System for Indoor Safety Monitoring with Covid-19With the goal of improving COVID-19 indoor safety, we describe in this work a low-cost loT-based system that manages a number of crucial factors such as social distancing, mask identification, and contactless temperature monitoring. A thermal camera or infrared sensor is built inside an Arduino Uno for the contactless temperature sensing subsystem, while a camera-equipped Raspberry Pi is used for computer vision duties including mask identification and social distance checks. Xiao Jingyi (1) Strategies Away from Pharmaceuticals to Combat the Pandemic in Non-Medical Settings The evidence for the effectiveness of environmental hygiene and non-pharmaceutical personal protection measures in non-healthcare settings is examined. The goal is to investigate the feasibility of implementing these strategies into pandemic preparedness. Although mechanistic research shows that hand hygiene and face coverings may be beneficial, laboratory validation of fourteen randomized controlled trials on these interventions revealed no significant reduction in influenza transmission.

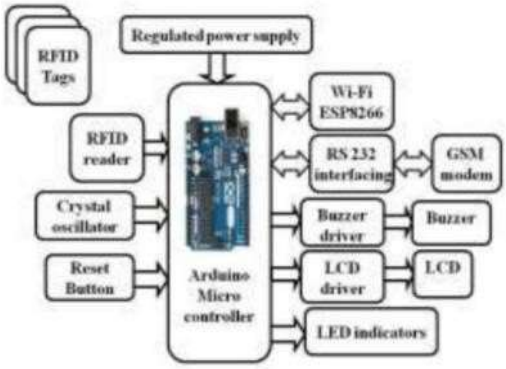
Sampath Sujitharaa, Ph.D. Respiratory viruses, such as coronavirus disease (COVID-19), spread through the eyes, nose, and pharynx when virus-containing droplets or mucus enter the body.The virus is transmitted when an uninfected person comes into touch with a clean surface previously handled by an infected person. When this system is in place, the lights will turn on and off automatically when you enter and exit the room.

Georgios Eftychios Christoforou is Medical telerobotics systems: current status and future prospects This study focuses on the exponential rise of medical teleoperated robotic devices across time. This is accomplished through the deployment of a systematic review of the relevant literature from 2004 to 2015. A comprehensive examination of telerobotics systems is offered, encompassing design concepts, enabling technologies (such as vision systems, telecommunications, and robotic manipulation), and potential global applications. In addition, future limits and trends are discussed.

3.IMPLEMENTATION

IOT INSTANT CONTACTLESS COVED TESTING BOOTH AUTOMATION

Blockdiagram



The design is implemented as follows: By using RFID technology to monitor instantaneous Aadhar card scan registration information, the system eliminates the need for individual registration. Using the given RFID device, the test subject provides the sample number of the individual in the booth. When the patient's examination is finished and it's time for the next person to go, the system sounds an alarm.Before the next person takes over, the previously obtained data is immediately uploaded to the laboratory via an IOT ESP8266 Wi-Fi module. The lab manager may see the number of samples examined in real time and use a WiFi module to update the test findings on an IOT server.When the responsible party changes a sample's test results, the system sends an SMS to the appropriate individual over GSM.Automating the Covid booth testing technique can help with pandemic response in a more fast, secure, and error-free manner.This project makes use of a microcontroller, a type of integrated computer. It serves as the initiative's central node. The onboard computer communicates effectively with the active input and output modules. The controller is furnished with internal memory to store code.This memory's purpose is to provide the controller with a set of assembly instructions. These assembly instructions are also required for the controller to function properly.

4.CONCLUSION

The most recent model has an integration mechanism for any hardware components created and used with Arduino. Each module's presence has been carefully examined and organized. We are thus helping to create the most efficient operating system for "IOT Instant Contactless Covid Testing Boot Optimization."

Furthermore, the project was successfully completed with the use of advanced integrated circuits and developing technologies. As a result, the design and testing phases of the project were productive.

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