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RFID and Biometric-based Candidate Authentication, Examination hall allotment, Smart screening and Sanitization

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Abstract: ***The aim of this work is to guide the candidate to the examination center. Nowadays, almost all examinations are performed on mixed systems. There are so many candidates having problems in finding rooms. Hence in this process, before coming to the examination hall, the students are relieved of their tension by helping them to find their seating arrangement. Every student will receive an RFID card as their admission ticket when they arrive at the college.[1]***
In the examination building the students flash their RFID tags to the RFID reader and provide their authentication using the biometric.The current COVID19 pandemic situation has driven the State Governments and all the college authorities around India to enforce limitations on transportation and movements of students to prevent the spread of disease. The measurement of body temperatures has always been the focus of the medical community. This work mainly focuses on the design and synthesis of a temperature detector as well as an automatic sanitization system.
Keywords: Thermal Screening, Smart Sanitisation, Authentication, RFID tags, GSM module.

I. INTRODUCTION

In most of the state level or national level public examinations, the seat number will be displayed on the notice board which may take a longer time to look for the same.
As a result of these concerns, we propose to develop a concerned guide that uses RFID and a fingerprint module that automates the complete work process of finding the seat number of the candidate.[2][3]
Temperature detection measures the temperature of a person by using a temperature sensor and tells us whether it is normal or abnormal. All modules are interconnected using the main controller and programmed using the Arduino IDE tool. To identify those who are infected with COVID-19, temperature measurements have become a major task. For this reason, contact-free measurements and social distancing are very important.The paper proposes the measurement of temperature and if deemed abnormal there will be a notification sent to the respective authority.
In recent days, due to pandemics like Covid-19, automatic sanitization has gained much popularity in hospitals, institutes, banks, and offices. The alcohol sensor is used to check the sanitation status of the candidate and the IR sensor along with a relay solenoid valve is used to dispense the sanitiser without any physical interaction. [4]

II. LITERATURE SURVEY

A. R. Santhana Krishnan, Ms.Aiswarya, Kannan G.Manikandan, Sri Sathya KB,V. Krishna Sankar, K. Lakshmi Narayanan ,"Secured College Bus Management System using IoT for Covid-19 Pandemic Situation "(ICICV-2021)

This work focuses on a secured bus management system that monitors students' health. The raspberry-pi used here checks whether a student adheres to the safety measures before boarding the college bus.The details will be fetched using RFID as an initial process and once the details are recognised, the camera captures the students face and checks for mask using MobileNetV2 classifier which consists of 1456 datasets of which 786 images are the faces with masks and the 670 images are faces without masks and compares using the given trained data set or the image.It uses the IR temperature to read the temperature. If the temperature is less than a certain threshold, access to the school bus will be granted for the student, and if the temperature is higher than that limit, no entry will be permitted and additionally the buzzer is activated.In the initial phase the tensor flow based Deep neural networks check whether the student is wearing mask or not. Additionally, the algorithm triggers an alarm and stores the details about the person not wearing a mask in the database. The student is not permitted to travel on the bus if he is not wearing a mask .As soon as the bus

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reaches the boarding point, the GPS system in the system will send an SMS to the parent informing them of their child's health information. The system will track the location of the bus and keep the parent updated until the bus reaches the destination.

B. *Goda Vasantharao, Sk Arifunneesa, "Temperature Detection and Automatic Sanitization and Disinfection Tunnel-COVID 19",* (2020)

This work mainly focuses on the design and synthesis of a temperature detector as well as an automatic sanitization system using an Arduino uno. Here the system measures the temperature of a person by using an LM35 temperature sensor and gives two outputs. When the temperature is below threshold buzzer remains OFF. Consequently, sanitization will take place.When temperature goes above threshold buzzer turns ON. Consequently, he/she sent out for medication.The system has also developed a sanitization tunnel that can be automatically operated without any human involvement and could benefit in maintaining social distance and preventing COVID-19.

C. *Sundar Kharvi, Akshay Raut, Sumeet Mali, Preshit Churi, "Temperature Detection and Automatic Sanitization and Disinfection Tunnel-COVID 19" (2021)*

The research and the groundwork of this system is making covid-19 temperature monitoring system in which they are getting the temperature of a person and that temperature is easily available to the owner of the company, hospital, office, institute so that it helps us to track the temperature of the person. RFID reader module operates at 13.56Mhz range it uses to communicate with RFID tag the reader communicates with a controller using 4 pin serial peripheral interface(SPI) with 10mbps data rate. Webcam use for face mask detection.
Camera interface using USB cable with Raspberry-Pi.MLX90614 is IR Digital sensor that used to measure temperature of object range from -70O C to 382.2O C. : Speaker interface with Raspberry pi using 3.5mm jack and it is used to play warning message if temp of user high or face mask not detected the warning will play via speaker. Firebase is used to store the temperature of multiple users which is updated in real time.

D. *Mr. D. S. Chaware,Mr. V. M. Pund ,Mr. P. K. Bhojane ,Mr. J. S. Dahale ,Mr. N. B. Waditke, "Examination Guide using RFID and Fingerprint Module for Jumbling System".*

This work focuses on the fact that students face many issues during the examination period. Identifying the proper examination hall is also a major issue. They are using RFID for an allotment system that makes it easy for students to identify their respective examination hall using RFID tags. They are using Arm Lpc2138 microcontrollerThe ARM7 microcontroller is a 32-bit RISC machine used for controlling actions in consumer, home, and embedded applications based on low power ARM7 that is compatible with all previous ARM chips. to store the data of the tags they are using the rfid reader module EM-18to scan the tags . Tags are given instead of hall tickets ,they are using LCD screens to display the examination hall . They have used fingerprints to increase the security of the examination. When matching, the user enters the figure through the optical sensor and the system generates a template.
In both situations, the system will return the matching result, either success or failure. They have used a buzzer component to avoid unauthorized students.

E. *Puput Wanarti Rusimamto1, Nurhayati Nurhayati, Eppy Yundra, Reza Rahmadian, Arif Widodo,Much Ade Dermawan, "Automatic Hand Sanitizer Container to Prevent the Spread of Coronavirus Disease", (IJCSE 2020)*

The suggested system has developed an automatic hand sanitizer that releases soap and water automatically. Additionally, it will notify the authority if the liquid has run out or is empty. It can detect heat and motion at distances up to 50mm from an object with the help of infrared (IR). This information is then sent to an Arduino Nano in order to initiate the pump. Infrared sensors detect motion by sending data to an Arduino when they detect a hand's motion. A relay activates the water pump when the Arduino receives the data.
Sensors will send data to Arduino up to 35 cm away from the water in a clean water container. Upon detecting the water from the ultrasonic sensor, the node MCU will transmit data to the Blink server using the distance detected by the sensor. Depending on the water level, a notification or data will be sent from the Blynk app to the Blynk server.Based on this, it can be concluded that the results of the automatic hand sanitizer testing were obtained with the smallest number of errors possible and can prevent the spread of covid 19.

III. COMPARISON TABLE

Author and Year	Title	Remarks
R. Santhana Krishnan , Ms.Aiswarya ,Kannan G.Manikandan ,Sri Sathya KB ,V. Krishna Sankar, K. Lakshmi Narayanan. (2021)	Secured College Bus Management System using IoT for Covid-19 Pandemic Situation	The system focuses on mask detection using the MobileNetV2 classifier and IR Temperature for thermal Screening. As soon as the bus reaches the boarding point, the GPS system in the system will send an SMS to the parent informing them of their child's health information. The system will track the location of the bus and keep the parent updated until the bus reaches the destination.Furthermore, the system can introduce automatic sanitisation along with thermal screening to enhance the safety of the student.
Goda Vasantharao, Sk Arifunneesa,(2020)	Temperature Detection and Automatic Sanitization and Disinfection Tunnel-COVID 19[5]	This work mainly focuses on the design and synthesis of a temperature detector as well as an automatic sanitization system using an Arduino Uno. This device may also be used in the near future at different industries, companies, and public places. Furthermore, they have designed a sanitization tunnel that can be automatically operated without any human involvement and could benefit in maintaining social distance and preventing COVID-19.
Sundar Kharvi, Akshay Raut, Sumeet Mali, Preshit Churi, (2021)	Covid-19. Temperature Monitoring System.[6]	The research and the groundwork of this project is making covid-19 temperature monitoring system in which they are getting the temperature of a person and that temperature is easily available to the owner of the company,hospital. Webcam used for face mask detection.Camera interface using USB cable with Raspberry-Pi.MLX906.Firebase is used to store the temperature of multiple users which is updated in real time.[7]
Mr. D. S. Chaware,Mr. V. M. Pound ,Mr. P. K. Bhojane ,Mr. J. S. Dahale ,Mr. N. B. Waditke,	Examination Guide using RFID and Fingerprint Module for Jumbling System	This work focuses on the fact that students face many issues during the examination period. They are using RFID for an allotment system that makes it easy for students to identify their respective examination hall using RFID tags. They are using ARM7 microcontrollers,as the main component to store the data tags are given instead of hall tickets ,they are using LCD screens to display the examination hall .They have used a buzzer component to avoid unauthorized students.
Puput Wanarti Rusimamto1, Nurhayati Nurhayati, Eppy Yundra, Reza Rahmadian, Arif Widodo,Much Ade Dermawan	Automatic Hand Sanitizer Container to Prevent the Spread of Coronavirus Disease.[8]	The system mainly focuses on a hand sanitiser that releases soap and water automatically. The owner gets an instant notification once the sanitiser is empty or below the given level. The obtained results show that the ultrasonic sensor will detect if the water level is 35 cm from the sensor and IR can detect the motion up to 50mm. Furthermore, the system can enhance the distance of the IR and ultrasonic sensors and include alcohol detection to check the sanitisation of the person which prevents the unnecessary wastage of sanitiser.

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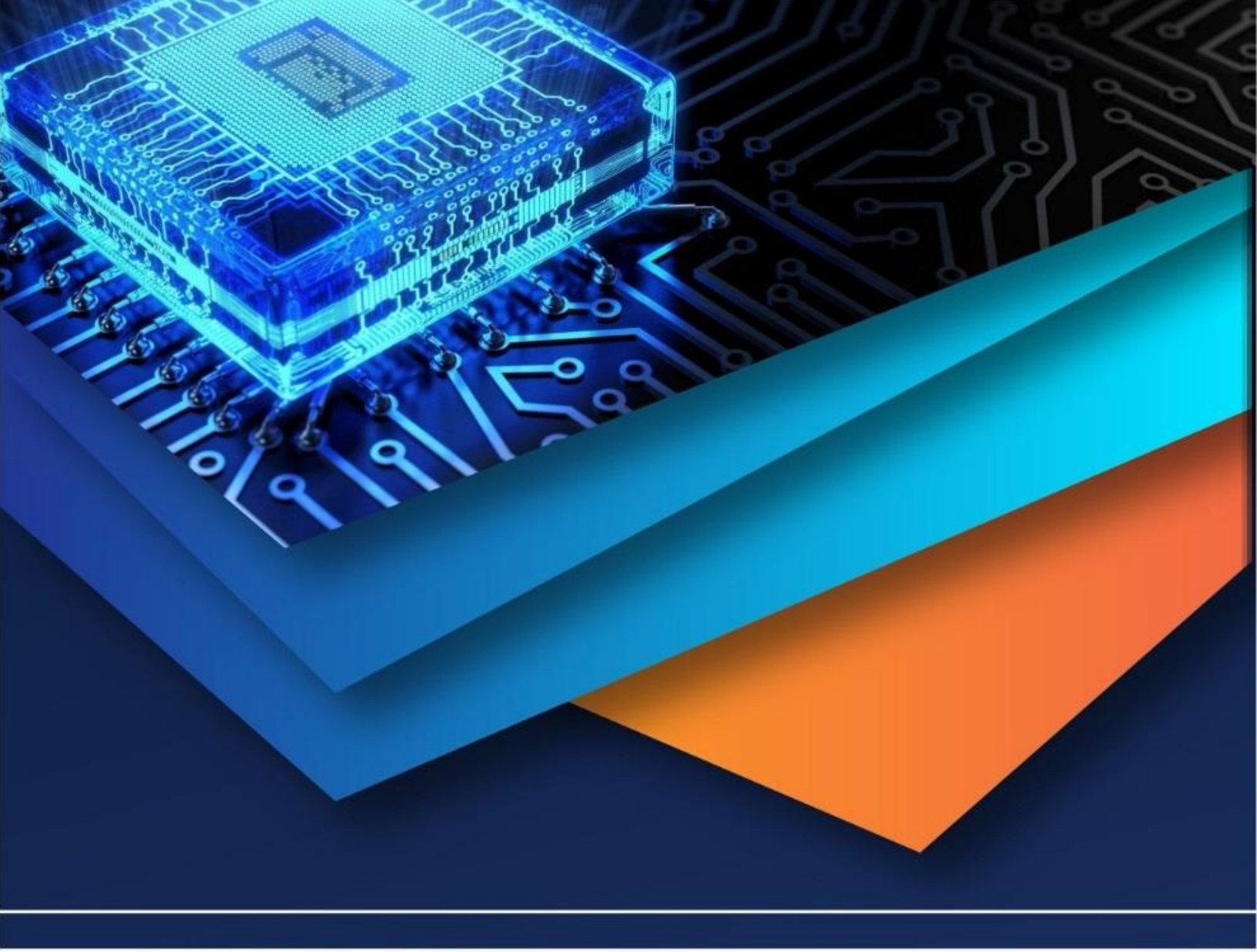
IV. CONCLUSION

From analyzing all the above systems, We can conclude that measurement of temperature and automatic sanitisation can be done more efficiently and accurately. Furthermore, the seating arrangements in colleges could be made more efficient and less cumbersome and also an easy way to access this information to monitor the student's attendance can be made using the GSM module. This kind of system could prove useful in the event of a pandemic like Covid19 to manage the entire process without any human intervention.[9][10]

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