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RASPBERRY PI BASED THERMAL SCANNER AND ATTENDANCE SYSTEM

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Abstract— In recent Covid-19 situation when many Industries or companies resumed their work, many employees got infected by Covid-19. For social distancing based thermal body scanning and attendance management system in a public environment such as in the university that have many facilities where people convene in a classroom, lecture hall, offices and food court using Artificial Intelligence (AI). Body thermal check before entering company is necessary for safety of all employees and students. "Raspberry pi based thermal scanner and attendance system" device will check the body temperature of person entering that particular building and he/she will be allowed to enter the room only if body temperature is below the threshold. Also, it will record their attendance after entering room.

Keywords – Social distancing, Non-contact body temperature measurement, Face reorganization, Attendance monitor

I INTRODUCTION

In March 2020, UN agency has declared pandemic because of COVID- 19. To date, it's been reported over ten million confirmed cases worldwide with over five hundred death reported within the presence of contagious diseases like H1N1 and COVID-19, social distancing is an efficient non-pharmaceutical approach that plays a vital role in managing pandemic from obtaining worse. If enforced properly, social distancing will effectively cut back the transmission and severity of a sickness, thus reducing the pressure on tending systems and permitting longer for state countermeasures. Additionally, the analysis suggests that social distancing initiatives and policies in response to the COVID- nineteen epidemics have substantial economic advantages. Several technologies are deemed to be ready to facilitate individuals or authorities to follow and fit the social distance rules and as an example, wireless positioning systems will effectively cue individuals to stay a secure distance by measure the distances between individuals and notifying them if they're too on the point of one another. What is more, alternative technologies like computer science (AI) technologies may be wont to facilitate or maybe enforce social distancing. By leverage the most recent wireless technology in exceedingly sort of mobile devices like smartphones, pill and notebook we will developa wise application that's capable to send word or alarm individuals mechanically whenever the social distance the minimum demand doesn't adhere. In a public atmosphere likein an exceedingly university that has several facilities wherever individuals convene in an exceedingly room, lecture hall, offices, and food court, the need to fits the social distance are going to be higher and additional necessary. Through the sensible model application, virtual fencing or wall that surrounds someone with a minimum radius is established this could ease the pressure to the management or building house owners in terms of their responsibility to make awareness to the scholars, staff, and guests of the importance of maintaining the social distance within the field. Additionally, to avoid being perpetually notified of the breach of social distance demand, the model can have a feature wherever the user or student get mechanically undergoes a thermal scanner. The appliance may be engaged to the knowledge in period of time social distance necessities.as an example, if the user needs to enter faculty he/she shouldundergo a thermal scanner then if the temperature is below average the scholar will enter the room at identical time mistreatment AI technology mechanically attending gets recorded. Mechanically attending gets recorded.

II LITERATURE SURVEY

Design of a Non-Contact body temperature measurement system for smart campus [1] Ho-Fai Tang and Kevin Hung developed an automated system with the integrated function of attendance taking

and temperature measurement. This system was developed to avoid the repetitive tasks of attendance taking and temperature logging of the school students when they arrived at school.

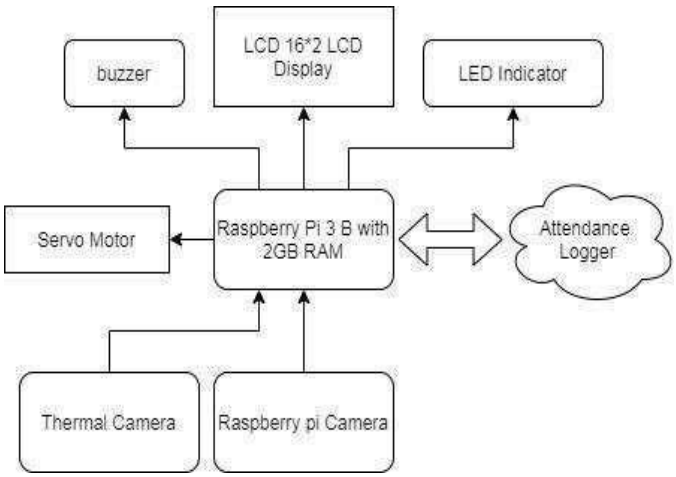
Image processing based Body temperature estimation using thermal video sequence [2] Arpit Sharma and Arvind Yadav planned a non-contact temperature rule supported diagnostic procedure analysis within the planned approach authors have incorporated viola Jones rule that selects best frame that contains all the options of face so the temperature for an equivalent has been measured.Contactless Attendance marking system with thermalScreening using Arduino [3] Vamsinandan and Archana Bhat proposed an idea to add face recognition along with temperature screening to the attendance marking system in the present situation created by Covid-19 pandemic. Thissystem is designed using ultrasonic sensors, IR temperature sensors, camera module which is interfaced with Arduino.

A Smart Social Distancing Monitoring System [4] Mohd Ezanee Rusli, Mohammad Ali and Salman Yussof presented an innovative solution called MySD which stand for "My Safe Distance" that helps users or public to observe social distance advice closely. It leverages smart phone hardware features that typically have Bluetooth transceiver as well GPSto determine safe distance and required level compliance.

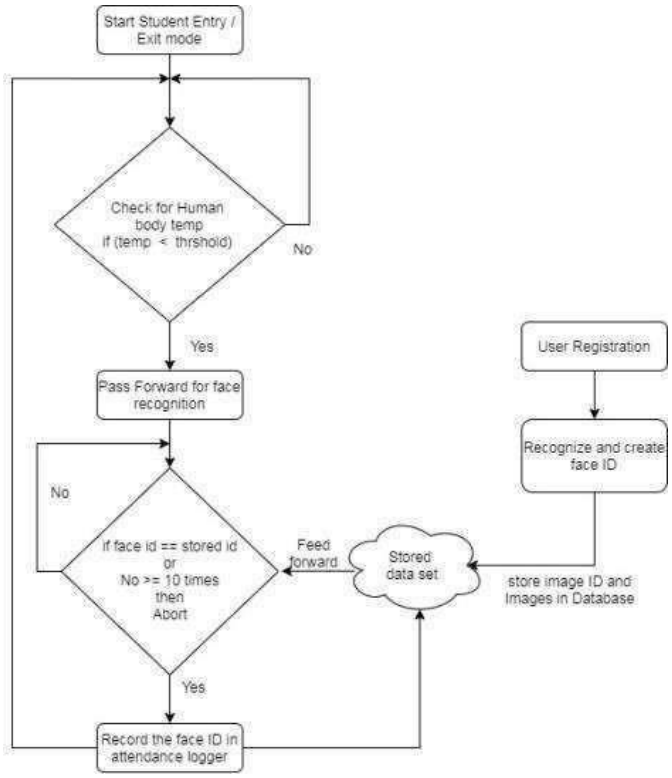
III PROPOSED MODEL

In this paper Raspberry pi 3B model which will control all subsystems. It is interfaced with LCD, LED indicator, servo motor, and HD+ thermal camera. As the person will come in front of a thermal camera, that person's body temperature will get scanned and if it's above the desired threshold then the buzzer will indicate and if not then on the next step pi camera will scan the face of the person and by identifying it, it will record his/her attendance with their body temperature and after finishing this process with the help of servo motor the door will open.

BLOCK DIAGRAM



IV IMPLEMENTATION



Above Fig Shows the flow of this system after enter into the system the system will check temperature of that personif the temperature of that person is above set temperature thensystem will not allow that person to go forward. After temperature detection the person will go for face detection. After face detection and face recognition process system will check whether the face id that will capture by system will match with store id .If that capture id will equal to the store id then that person attendance store into the attendance logger .New user can also register by using new registration button and save their data into database.

V OUTPUT

Hardware

After training output:

Database output:

sample [Compatibility Mode]

	A	B	C
254	11/05/2020, 18:17:35	Apurv	
255	11/05/2020, 18:17:35	Apurv	
256	11/05/2020, 18:17:35	Apurv	
257	11/05/2020, 18:17:35	Apurv	
258	11/05/2020, 18:17:35	Apurv	
259	11/05/2020, 18:17:36	Apurv	
260	11/05/2020, 18:17:36	Apurv	
261	11/05/2020, 18:17:36	Apurv	
262	11/05/2020, 18:17:36	Apurv	
263	11/05/2020, 18:17:36	Apurv	
264	11/05/2020, 18:17:36	Apurv	
265	11/05/2020, 18:17:36	Apurv	
266	11/05/2020, 18:17:36	Apurv	
267	11/05/2020, 18:17:36	Apurv	
268	11/05/2020, 18:17:36	Apurv	
269	11/05/2020, 18:17:36	Apurv	
270	11/05/2020, 18:17:36	Apurv	
271	11/05/2020, 18:17:36	Apurv	
272	11/05/2020, 18:17:36	Apurv	
273	11/05/2020, 18:17:36	Apurv	
274	11/05/2020, 18:17:36	Apurv	
275	11/05/2020, 18:17:36	Apurv	
276	11/05/2020, 18:17:36	Apurv	
277	11/05/2020, 18:17:36	Apurv	
278	11/05/2020, 18:17:36	Apurv	
279	11/05/2020, 18:17:37	Apurv	
280	11/05/2020, 18:17:37	Apurv	
281	11/05/2020, 18:17:37	Apurv	
282	11/05/2020, 18:17:37	Apurv	

VI CONCLUSION

Health safety is critical issue in current Covid-19 situation. In this paper Raspberry Pi based Thermal Scanner will help the user or public to maintain social distancing along with the temperature measurement and attendance monitoring.

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