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## TEMPERATURE AND MOVEMENT SENSED AUTOMATIC DOOR OPENING SYSTEM

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### ABSTRACT

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During this pandemic situation the hygiene plays a very important role,so our project movement sensed automatic door opening system based on human movement is helpful in places like college,school,hotel and etc. To automate the process of opening and closing the doors.To sense the body temperature of the person approaching.Thereby making the process of thermal screening faster, efficient and more functional.

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Keywords:PIR Sensor,MLX90614 temperature IR sensor,motor driver module,LCD

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### 1. INTRODUCTION

This project mainly aims in designing a movement sensed automatic door opening and closing of door for domestic and industrial applications. Opening and closing of door is tedious job in places where crowd is comparatively high like malls,colleges etc.

Movement sensed automatic door opening and closing of door by sensing body movement near the door is achieved by pirsensor and sense the body temperature usingMLX90614 Temperature IR sensor so that making the process of thermal screening faster, efficient and more functional. Usually,a human body emits infrared energy which is detected byPIR sensor.And the temperature sensor checks the temperature and if the temperature exceeds normal body temperature the door will remain closed.

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### 2LITERATURE SURVEY

The first paper we referred is Implementation of Automatic Door Opening System with Entry Counter for University Library advantage of this paper is low power consumption and display the status of door on LCD,but the disadvantage is when more people enter at same time results in failure of PIRsensor [1]

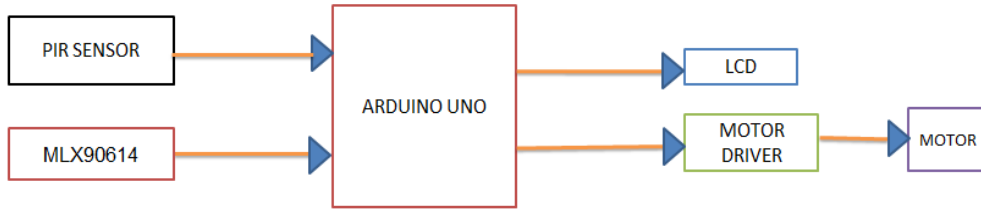
The second paper we referred is automatic opening and closing of door,the advantage of paper is door access can be controlled,the disadvantage is this system doesn't acknowledge the status of devices being operated [2]

The third paper we referred is Motion Based Automatic Door Opener,the advantage of paper is large load carrying capabilityEasy to manufacture; no specialized machinery is required,but the disadvantage is that most are not very efficient. Due to the low efficiency they cannot be used in continuous power transmission device [3]

The fourth paper we referred is Movement Sensed Automatic Door Opening System Circuit and Working,the advantage is safety and Security,but the disadvantage is high price [4]

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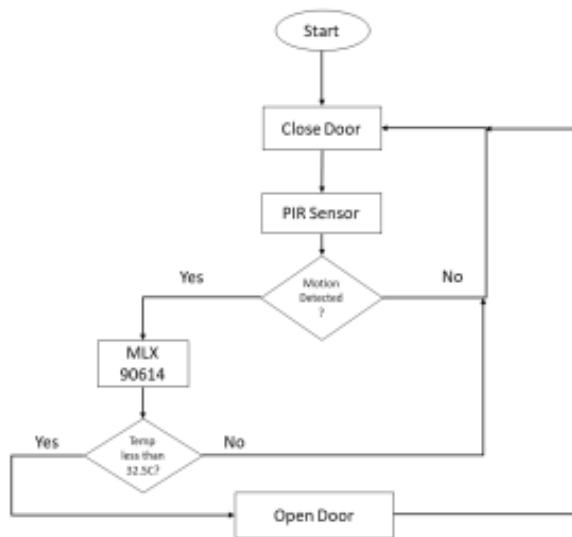
### 3.BLOCK DIAGRAM



### COMPONENTS REQUIRED

COMPONENT	QUANTITY	VALUE
Arduino UNO	1	
PIR Sensor	1	
MLX90614 Temperature IR Sensor	1	
L298N MOTOR DRIVER MODULE	1	
MOTOR	2	5V
LCD	1	
I2C Module	1	
Connecting wires	2 set	

### 4.METHOD



## 5.WORKING

The working of movement sensed automatic door opening system basically consists of PIR sensor and MLX90614 temperature IR sensor when the human arrives at the the door PIR sensor detects the infrared radiation emitted from human body and the temperature sensor sense the human body temperature and if the temperature of the body is normal then it greets and opens the door if the temperature of the body exceeds than normal body temperature then the door will remain closed.

Initially when the human arrives at the door the human body generally emits Infrared energy which is sensed by PIR sensor from a considerable distance then the signal is fed to the Arduino when the body approaches within the range of PIR sensor then the temperature sensor detect the body temperature and sends to Arduino If temperature of the body is normal then the the motor driver opens the door If temperature exceeds the normal body temperature then the door will remain closed

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## 6.CONCLUSION

It enables us to understand the concept of such automatic door opener systems and how they work.

We avoid any set of contact in places like in a main door in theatres, malls, colleges etc., which are widely used in urban areas.

We thereby are aiding the reduction in the spread of coronavirus.

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## 7.REFERENCES

[1].Michael McRoberts, 2016, "*Beginning Arduino*", second edition

[2]John Baichtal, 2014, "*Arduino for Beginners*"

[3] Daiki Nishida et.al., 2014, "*Development of intelligent automatic door system*", IEEE International Conference on Robotics and Automation (ICRA)

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