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Door lock using Arduino motion detector by PIR sensor

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ABSTRACT

This project is mainly for the security purpose of any door, it may can be for door for normal houses, or it can be for any other kind of door. But it is better for normal house doors as other type of doors have many other higher lock systems and that are better for that purposes. But house door locks are to easy and too basic to open now a days ,for which the robbery and theft are increasing this much, so as a solution it can help us to protect our home .

Keywords: *To Increase the Security of Normal House Doors, Pir Sensor, and Arduino*

1. OBJECTIVE

Objective o this project is to increase the security of normal house doors , mainly in India where the house door locks re too easy to open.

2. INTRODUCTION

House door locks in India are very basic like normal key used lock and hardly the wall locks which is also opens using normal keys which are too easy for the thieves and robbers to open in these in these modern times where everyone is updated with technologies. And this is the high time to think and do the needful to solve this problem in this situation.

1.1 Maximum house door locks in India

Fig.1 locking system in India in house locks

1.2 Theft & Robbery statistics in India

Fig 2 Theft & robbery statistics in India .

3. PROPOSED MODEL

An Automatic Door Opener System is a simple project based on PIR Sensor and Arduino, which automatically opens and closes the door by detecting a person or object.

You might have seen Automatic Door Opener Systems at shopping malls, cinemas, hospitals etc. Where, as soon as a person approaches the door (at about 2 or 3 feet), the door automatically slides open. And after some time (about 5 to 10 seconds), the door closes by sliding in the reverse direction.

Such Automatic Door Opener Systems are very useful as you do not need a person to standby the door and open it whenever a guest comes. Also, since the doors are opened and closed only when a person approaches the door, there is significantly less loss of air conditioning.

So, in order to understand the potential of this concept, we have implemented a simple Automatic Door Opener System using Arduino and PIR Sensor.

3.1-Block Diagram Of The Proposed System

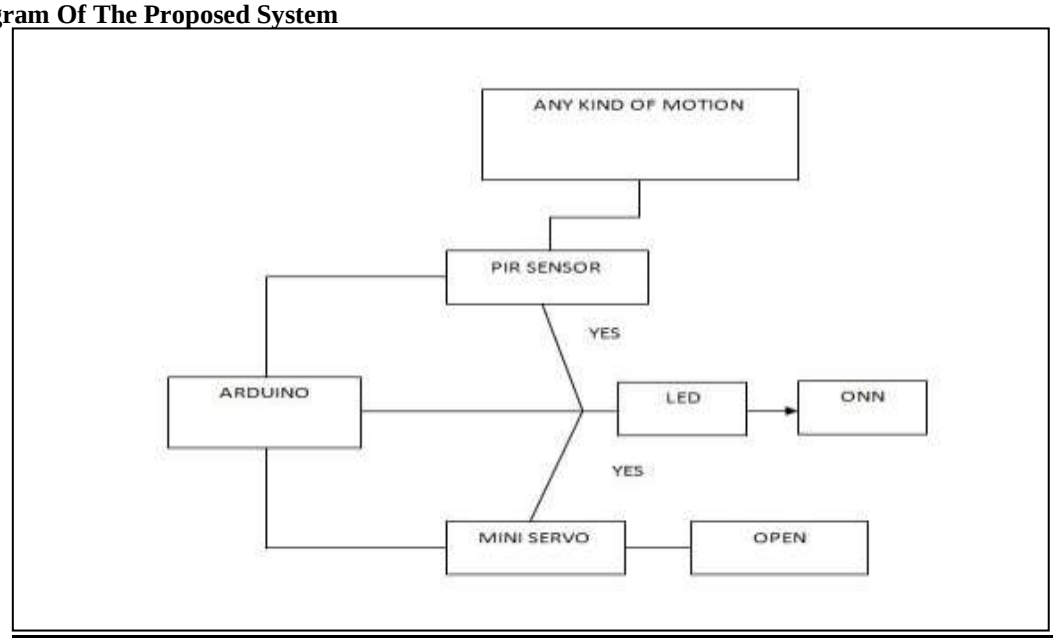

Fig 3. Circuit model block diagram

3.2 Materials Required

1) Arduino.
2) Breadboard.
3) Servo.
4) PIR Sensor.
5) Led.
6) Resistor.

4.WORKING PRINCIPLE

The working of the Automatic Door Opener System using Arduino and PIR Sensor is very simple. This project can be considered as an extension of Arduino PIR Sensor Tutorial and Arduino L298N DC Motor Control Tutorial.

When the PIR Sensor detects any motion of a person, its Data OUT Pin will become HIGH. As this pin is connected to the Arduino, it will detect this HIGH Signal and understands that there is person approaching the door.

Arduino then immediately activates the L298N Motor Driver module to open the door. After some time (about 2 to 5 seconds in this project), the Arduino will once again activate the Motor Drive to close the door.

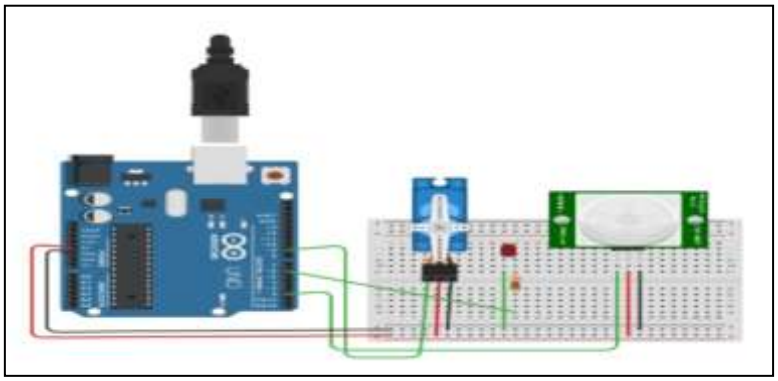

Fig 4. Circuit diagram

5. APPLICATIONS

- Arduino based Automatic Door Opener System is a very useful project as it enables you to understand the concept of such automatic door opener systems and how they work.
- These systems are already being used in many places like malls, theatres and hospitals.

- You can implement this Arduino based project at you home in Garage Door Openers, toilet cover openers, Office door openers, etc.

6.CONCLUSIONS

We have successfully implemented the entire circuit, It works which is good enough for me. It functions in daytime just as well as it does at night. It detects when animals and people approach and it isn't overly sensitive. The problem that I set out to solve has a solution .That doesn't mean that it's the best solution however. There is still room for improvement by tweaking some of the variables or even developing better algorithms that improve upon this simple system. Why don't you see if you can improve the code yourself. I shall be connecting the motion detector to a relay to enable it to do things like sound an alarm or even fire a battery operated water gun. I have it in mind to construct a device to stop cats pooping on my property. Look out for this projection the PCB with obstacle detection feature. Since all we need is a mobile call establishment to instruct the robot due to the cell phone's unending and cheap availability, this is highly feasible. The level of sophistication is quite low and hence its working is user friendly. Project can also be subjected to standardization and hence has a good future scope.

7.REFERENCES

[1] https://circuitdigest.com/microcontroller-projects/arduino-motion-detector-using-pir-sensor
[2] Wireless Communication-T.S. Rappaport,
[3] Prentice Hall Publications,2nd Edition.
[4] Principles of Communication Engineering- J. M. Wozencraft and I. M. Jacobs, John Wiley Publications,3rd Edition
[5] Schenker, L, "Pushbutton Calling with a Two-Group Voice- Frequency Code" The Bell system technical journal, vol 14,no. 2, Jan 2006.
[6] M. Ali Yousuf, R. Montúfar Chavez Nava, and V. de la Cueva Hernández, "Robotic projects to enhance student participation, motivation and learning", Hernández Current Developments in Technology- Assisted Education ,pp 922-952, July 2008.
[7] Robert Siwy, "Generation and Recognition of DTMF Signals with the Microcontroller MSP430", Texas Instruments Deutschland, October 2005.

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