

# Notice Circulating Robot using Raspberry Pi Zero W

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**Abstract** - In this project, we have made a working prototype of a concept. We designed a robot, using a compact and high-speed micro-controller that will serve the purpose of notice circulating robot. The aim of this design is to provide an automated solution for circulating notices over an area. In this system, we have used a line follower robot as a basic movable system. We provide the notice over a touchscreen display. By the use of the touch screen, we can take appropriate signatures as a feedback. The atomized robot is using a controller and line following principle. We have used IOT for transferring the actual notice over a WIFI connected to the Laptop machine and Raspberry PI zero W. Thus, saving the actual paper and the remote authority also knows about the feedbacks.

similar concept of obstacle avoidance or line follower concept used.

### Proposed solution:

We actually managed to encounter a project, which uses a different controller but similar concept where there was a paper notice and a key pad for entering the classroom number. However, this project wasn't mentioned in any papers for reference nor published in any journal.

### 3.1 BLCOK DIAGRAM

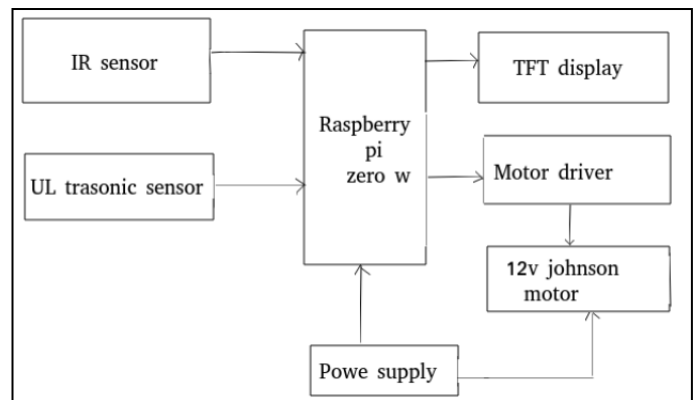


Fig 1: Block diagram

**Raspberry pi:** - In this block diagram, we have used raspberry pi zero w. This is a lightweight 32-bit processor. It works on Raspbian operating system. It uses python programming for controlling its pins.

**IR-sensor:** - The three IR-sensors used here are for two purposes. We use one pair to check the Black line, which the robot will follow. The other IR-sensor is used to know when a class is occurred.

**Ultrasonic sensor:** - The ultrasonic sensor used here is for detecting obstacle. The sensor senses the object by using sonar principle. The reflected waves are timed to know the actual distance between the robot and the object(obstacle).

**TFT Display:** - The TFT display used here is for displaying the notices, which the remote machine will transferred using SSH protocols. The special purpose TFT is portable display specially designed to work with Raspberry pi modules. We

**Key Words:** Hotel Management, School and Banks

## 1. INTRODUCTION

The purpose of this project is in today's world, the new technologies always replaces mundane work. This reduces human effort and cuts in the time and money. Considering the same aim, we developed a new concept, where in there will be no more human interaction for actually announcing or circulating notices. This is accomplished by using a mobile machine or so-called robots. This new concept utilizes a notice-circulating robot, which is also upgraded to avoid obstacles. For this concept, we also tried to be environment friendly by implementing the touch screen display, and hence reducing paper use. Our solution actually provides the automated robots, which goes to a location for displaying the notices. The line following principle and obstacle avoiding robot backs up this concept.

## 2. RELATED WORK\LITERATURE REVIEW

Currently there are no actual practices of this project. There are small-assembled parts of the project, which are generally used. For this purpose, we have researched many websites, which include the topics about "obstacle avoidance robot". We also have included the topics, which have interfacing of TFT display to Raspberry Pi module.

## 3. PROPOSED METHODOLOGY

### Existing problem:

Currently there are no published papers, which actually used the full concept. There are different applications where the

will use the touchscreen capabilities to get feedback (Signatures) from the authorized receiver.

**Motor Driver:** - The l293d motor driver module is very helpful in providing high power logic control to drive the motors. The module is useful for driving two motors. The Raspberry pi controller gives the input signal to this module.

**Motors:** - In this project, we use two high power Johnson motors. The motors are capable enough handle the heavy weight of the chassis, the battery and overall weight of the robot. The motor driver controls the motors.

**Power supply:** - In the project, we have used two different power sources. The first source is the power bank. This power bank is used to provide the required 5v 1 Ampere power to raspberry pi.

### 3.2 FLOW CHART

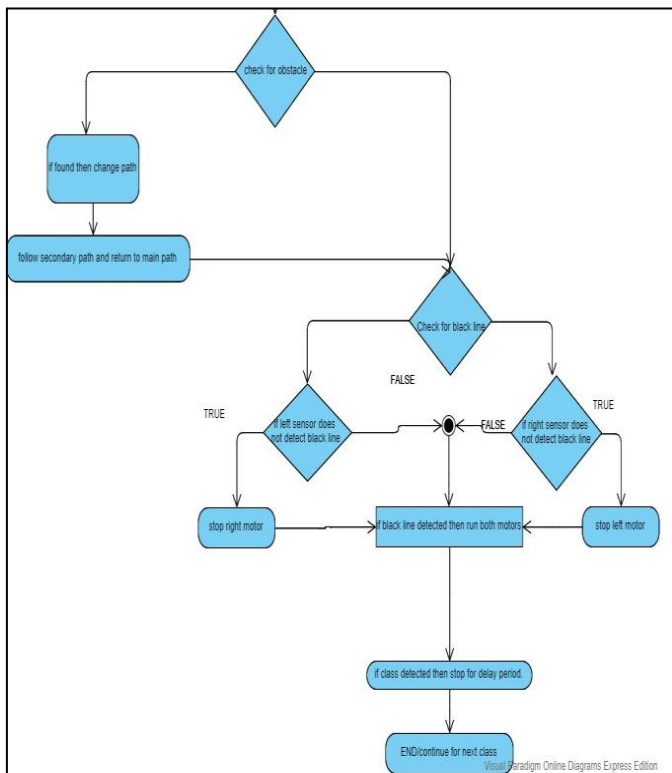


Fig 2: Flow chart

### 4. SYSTEM OPERATION

The basic system operation is to deliver notices by going to every class on the floor. First, the remote user accesses into the raspberry pi system using VNC server application. For this, we need the remote system and the raspberry pi to be connected to the same Wi-Fi. The VNC application gives us a way to communicate to the raspberry pi. We can display the notice in pdf viewer and also, we can then run the main program to start the application. The python file runs the motors and it will follow the black line till the class mark is

occurred. Then the robot will stop and the notice is displayed. For detecting the line, we have programmed the pi to use two IR sensors. Another IR sensor is used to detect the class. Similarly, the robot will continue to go to the classrooms and return back after the last class room is reached. If any obstacle occurs in the path then the ultrasonic sensor detects it then the robot is programmed to take a different route to overcome the obstacle and then goes back to the same path to continue further. The ultrasonic sensor can sense the obstacle as far as 1m and hence changes the path before the obstacle is hit.

### 5. RESULT



Fig 4: Project module

### 6. CONCLUSION

From above project and as per our best knowledge we conclude that, we made robot in minimum cost which will be used in different sector and it minimizes work of human being for circulating notices. We will be able to provide the customer with a fully atomized robot which will deliver the notice without any delay or malfunction

## REFERENCES

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