



# IJRASET

International Journal For Research in  
Applied Science and Engineering Technology



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# INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

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**Volume: 8    Issue: IX    Month of publication: September 2020**

**DOI: <https://doi.org/10.22214/ijraset.2020.31569>**

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# Intelligent Robot for Home Need

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**Abstract:** *This paper proposes about the identification of the visual dust particles in our house. With increase in the safety standards of the automobile products, the contribution of the safety factor from the user is only minimal. The rising semi-autonomous vehicle technology almost answer's the safety questions. We believe with a semi-autonomous mode; the user can have the privilege to use the vacuum cleaner in safety mode. Though it is the choice of single vehicle, this can be put into use in our daily products. To examine this hypothesis, a prototype was designed to prove the case. After constructing the prototype with the use of Arduino uno and Dust Sensor, with further design and modification, this technology defends our project goal.*

**Keywords:** *Arduino uno, Dust sensor, LED, Resistor, Capacitor, Battery source, node mcu etc...*

## I. INTRODUCTION

### A. Description of the Project

Robot is an electromechanical device which operates in many area instead of human's. It also works in many areas like power plants, in application of military, agricultural works and in domestic works. This project is based on battery source operated vacuum cleaner using Arduino uno, sharp dust sensor, node MCU.

A suction pressure is used to suck the garbage, dust or dirt particles. To segment the dust particles three framework technique is used for filter detection, edge detection and noise filtering. The robot which is used for floor cleaning is gained more popularity in European countries. Because when peoples are busy with their own work this floor cleaning robot performs its task. The robot technology is becoming more and more advanced so the beyond fetching applications may improve in future.

It consists of the following sections

- 1) Existing system
- 2) Literature review
- 3) Proposed system
- 4) Block diagram
- 5) Working
- 6) Pin configuration
- 7) Reference

### B. Existing System

Robotic design for cleaning our home needs. The dish washing robot is designed to reduce our daily work. It is designed with a container for washing vessels. Manually the vessels are dropped into the container so that the human help is needed in that situation. The major disadvantage is that manual work, time wastage, and water is wasted in large amount. Nowadays water scarcity is more so this project may be a major drawback in today's situation. This project is one of the applications of our home need, to reduce our daily work and human are working manually.

## II. LITERATURE REVIEW

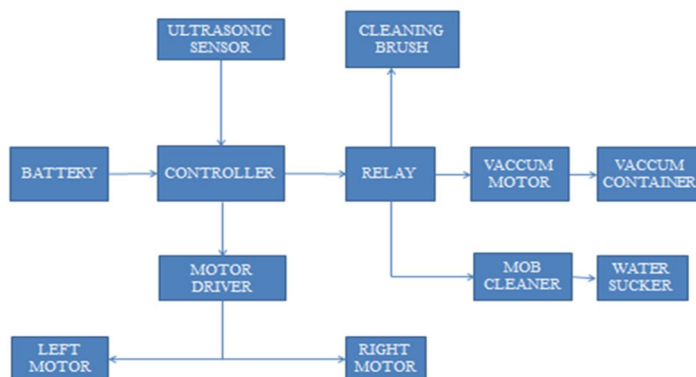
Reference [1] this paper shows the avoidance with ultrasonic sensor, it is used to detect the distance from the robot and the drawback, it is very sensitive to variation in the temperature.[2] this paper shows the lane detection and tracking, it actually detects the lanes in short span of time and drawback is misdetection in curvy roads and due to shadows some misdetection occurs.[3] the internet of robotic things, this paper is an emerging vision which brings both sensor and objective together. It have both robotics and IOT technologies.[4] interaction within tasks robot, this robot is mainly used for the safety factor of the humans mainly for children. A task protocol is the main reason for this paper. [5] navigation for an intelligent mobile robot, a navigation robot is described for a mobile equipped mobile robot with ultrasonic range sensor, used only for local environment is the major drawback.[6] an intelligent universal remote control system for home applications, the smart home is one of the representative field of IOT. It will control only the target point in the interface of the screen.[7] IOT based home automation using raspberry pi, it can perform different task at the same time, it have some limitations due to its hardware.

**A. Proposed System**

To identify the dust particles in which particular room it is exactly present .Range sensor to navigate the distance and obstacles .An algorithm is used to detect obstacles and change its path. To avoid collision different lane tracks are used. Level sensor is used to check the dust level in the bin. Dust sensor is used to check the dust present in particular rooms. This project is to design a robot for home needs and to make our home a dust free. The main objective of this project is to keep our house clean at a particular time interval, so time wastage is reduced due to human actions. The project is coded in IOT using Arduino ide software.

**B. Block Diagram**

This is the general block diagram for the project



**C. Working**

The working principle for the vacuum cleaner is attached with a centrifugal fan for the axial flow of air in its external kinetic energy. Air is sucked and pushes forward, negative pressure is created. Between two location the pressure difference is created and the axial flow is from one location to another. The centrifugal fan is connected to a motor. The battery is the power supply given to the motor to rotate. It sucks all the mud, dust, and dirt particles. The robot is designed to rotate in a 360 degree angle. The arduino is coded using a software tool. The program is coded in Arduino ide software. Blynk app is connected with node mcu, because the comment is given by internet. It can be accessed from anywhere by just interchanging the name of the device and password. The project is to just identify the dust particles present in the room. To just indicate the dust present exactly in which place an indicating light is fixed individually for each room. The program is coded in arduino ide software.

Dust sensor program:

```

int sensor_input=A5;
int sensor_output=12;
void setup( )
{
pinMode(sensor_input,Input);
pinMode(sensor_output,Output);
}
void loop( )
{
val= analogRead(sensor_input);
analogWrite(sensor_output, val);
}
  
```

Node\_mcu program:

```

#include<ESP8266WiFi.h>
#include<BlynkSimpleEsp8266.>
char auth[]="9nDsd67HHbRRGCFrsLpoJMMfA23gmEIU";
char ssid[]="Redmi";
  
```

```
char pass[]="jeevayuvi";
void setup()
{
Serial.begin(9600);
Blynk.begin(auth,ssid,pass);
}
void loop()
{
Blynk.run();
}
```

### III. COMPONENTS

#### A. Arduino UNO

The Arduino UNO is an 8-bit microcontroller developed by Arduino cc. It is an open source microcontroller. It have both digital and analog, input and outputs, the pins have the interface between other circuits. The memory is SRAM. The main components of Arduino UNO are analog pins, digital pins, switch, oscillator, power switch, USB ports etc.... It is used for open source electronics platform based on hardware and software. It is coded in Arduino IDE software. It has a WiFi module inbuilt in the microcontroller.

#### Arduino UNO Features

- 1) Operating Voltage- 5V
- 2) Input voltage- 6v
- 3) DC current I/O pins - 40mA
- 4) Storage – 8 bit

#### B. Dust sensor(GP2Y1010AU0F)

Sharp dust sensor is a compact optical sensor is used to find dust particles like cigarette smoke and dust. It have 6-pin configuration. It supports 220uf capacitor and 150 ohm resistor.

#### Features Of Dust Sensor

- 1) Maximum current consumption- 20mA
- 2) Operating voltage- 5V
- 3) Sensitivity- 0.5 V
- 4) Dust detection size- 0.5m
- 5) Sensing time- <1 sec
- 6) Accuracy- 30%

Pin configuration

Pin no	Pin	Pin configuration
1..	V-LED	Connect with resistor
2.	LED-GND	Connect to ground
3.	LED	Connect to any digital pin in arduino
4.	S-GND	Connect to ground
5.	Vo	Connect to any analog pin in arduino
6.	Vcc	Connect to 5v



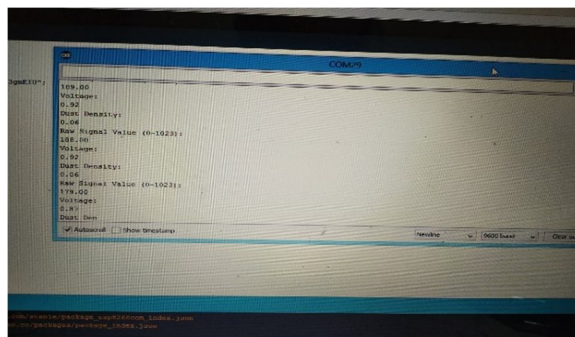
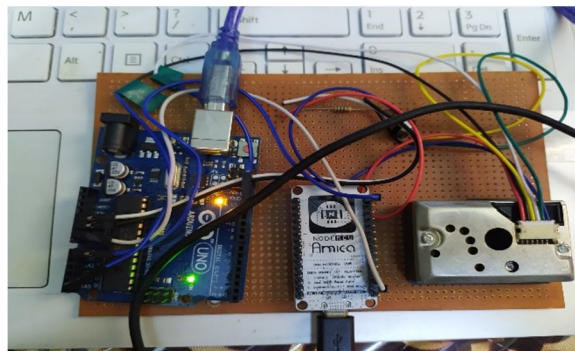


Fig: Dust sensors

#### IV. CONCLUSION

The Project is the identification of the visual dust particles in our house to clean the house at a particular time interval. It is used for both the wet and dry vacuum . The dust is cleaned completely. Manual work is reduced so time consumption is reduced. It identifies the dust practical exactly with dust volume.

##### A. Output



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