**SHRI GOVINDRAM SEKSARIA INSTITUTEOF TECHNOLOGY AND SCIENCE, INDORE**

****

**DEPARTMENT OF ELECTRONICS &TEELECOMMUNICATION**

**ENGINEERING**

Electronics Workshop -II

(EC 25992)

A PROJECT ON

**“AUTOMATIC MINI-CAR WITH**

**OBJECT DETECTION”**

**(Batch:2017-21)**

**SUBMITTED TO: SUBMITTED BY:**

Mr. Ashwin Srivastava Sir DurgeshYadav(0801EC171031)

Mr. Gopikrishnan Sir Naman Jain (0801EC171052)

PankajKumar(0801EC171055)

**CONTENT:**

1. CERTIFICATE

2. ACKNOWLEDGEMENT

3. INTRODUCTION

4. CIRCUIT DIAGRAM

6. WORKING

7. APPLICATION

8. BIBLOGRAPHY

9. RESULT & CONCLUSION

**CERTIFICATE**

This is to be certified that the project entitled “AUTOMATIC CAR WITH OBJECT DETECTION” is an original work carried out by *Durgesh Yadav, Naman Jain, Pankaj Kumar* in partial fulfillment for the award of degree of Bachelor of Engineering of Shri Govindram Seksaria Institute of Technology & Science, Indore, during the year 2018-19. The report has been approved as it satisfies the academic requirements and the students have worked under my guidance as directed.

Signature-

Mr. Ashwin Srivastava Sir

Mr. Gopikrishnan Sir

**ACKNOWLEDGEMENT**

I am thankful to the director of this college, Dr. R K Saxena sir for giving me the opportunity to make this project. The kind of learning I have gained while working on this project has proved to be invaluable.

I am extremely grateful to Mr. Ashwin Srivastava Sir and Mr. Gopikrishnan Sir my supervisor and mentor for always showing me the way and guiding me through the process of my internship.

I would like to thank my friends for giving me all the support I required and making all necessary arrangements for me to complete this research as well as the freedom to take my work in the direction I desired.

I am thankful for all of my respondents without whom this study would not have been possible.

I Would also like to thank to my parents and team members for supporting me.

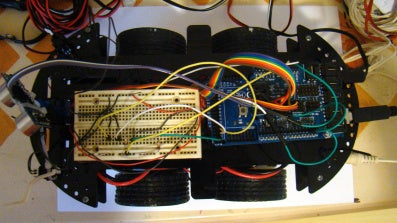
**INTRODUCTION**

Automatic car with object detection is a device\project which is a car working on Ultrasonic sensor. This consist of a car, Ultrasonic Transreceiver, battery and motor driver. When a opaque object is in front of sensor, the device deviates.

Unlike the car that follows the line, that needs a line painted in the ground, this is one completely autonomous, since it can see the distance that things are and deviate from them.

This project/device can be used as a spy device which follows the object, sensor which senses a object, or as a toy.

**CIRCUIT DIAGRAM**



**LIST OF COMPONENETS**

1 x Ultrasonic sensor HC-SR04

1 x Servomotor

3 x Buttons (emergency buttons)

1 x L298N

1 x Chassis

4 x Motor

1 x Arduino

**WORKING**

As the Ultrasound has a 15 degree viewing angle, the servomotor is used to expand this field. Emergency sensors, as the name says, are there in case of an emergency, when one of them is activated, the car goes back and then checks to which direction it should go.

The servomotor was connected to pin 8 of the Arduino

Emergency sensors | Arduino  
1 = 22

2 = 24

3 = 26

Ultrasonic sensor | Arduino

echo = 13

trig = 12

L298N | Arduino

in1 = 6

in2 = 5

ena = 7

in3 = 4

in4 = 3

enb = 2

**PCB LAYOUT**

**APPLICATION**

This project/device can be used as a spy device which follows the object, sensor which senses a object, or as a toy. This is a device which works without arduino or any microcontroller.

**BIBLIOGRAPHY**

1. [www.google.com](http://www.google.com)
2. www.wikipedia.com
3. [www.scribd](http://www.scribd).com
4. [www.alldatasheet.com](http://www.alldatasheet.com)

**RESULT & CONCLUSION**

This project teaches us about sensor transmitter and receiver, Various ICs like LM358 op-amp, L293D motor driver and 7805 voltage regulator. Also it teaches about motor driver ICs, H Bridge and comparator working.