AMRUTVAHINI COLLEGE OF ENGINEERING, SANGAMNER-422608



A PROJECT REPORT ON

"ROBOTIC CAR CONTROL USING ANDROID APPLICATION"

Submitted by,

- 1) Mr. AMBRE PRANAV B.
- 2) Mr. BHADKE SHUBHAM V.
- 3) Mr. GADE ABHISHEK B.
- 4) Ms. MANDLIK SMITA B.

Guided by,

Prof. R.N. DEOKAR

Year: 2022-23

Department of Electronics & Telecommunication Engineering
Amrutvahini College of Engineering, Sangamner

AMRUTVAHINI COLLEGE OF ENGINEERING, SANGAMNER-422608



CERTIFICATE

This is to certify that the Project entitled

"ROBOTIC CAR CONTROL USING ANDROID APPLICATION"

has satisfactorily completed by,

- 1) Mr. AMBRE PRANAV B.
- 2) Mr. BHADKE SHUBHAM V.
- 3) Mr. GADE ABHISHEK B.
- 4) Ms. MANDLIK SMITA B.

As per requirement of Savitribai Phule Pune University in partial fulfillment of degree in Electronics & Telecommunication engineering for the second semester of academic year 2022 - 2023.

Prof. R.N.DEOKAR
(Project Guide)

Dr. S. R. JONDHALE(Project Coordinator)

Dr. R. P. LABADE (HOD)

Dr. M. A. VENKATESH (Principal)

SAVITRIBAI PHULE PUNE UNIVERSITY



CERTIFICATE

This is to certify that,

NAME	SEAT NO.		
1) Mr. AMBRE PRANAV B.	B190103004		
2) Mr. BHADKE SHUBHAM V.	B190103009		
3) Mr. GADE ABHISHEK B.	B190103017		
4) Ms. MANDLIK SMITA B.	B190103044		

Students of B.E. Electronics & Telecommunication Engineering were examined in the Project Stage II term work entitled

"ROBOTIC CAR CONTROL USING ANDROID APPLICATION"

Internal Examiner

External Examiner

Department of Electronics & Telecommunication Engineering
Amrutvahini College of Engineering, Sangamner

ACKNOWLEDGEMENT

First, we would like to express our best regards to our Project Guide Prof. Ms.R.N. DEOKAR whose valuable guidance, encouragement, and provision of necessary facilities made this work possible. We are also thankful to our respected Head of the Department Dr. Ms. R. P. LABADE whose help and shared knowledge was the main support to do our project. We are also thankful to project coordinator Dr. S. R. Jondhale for his continuous support. Many thanks are owed to our classmates for their useful discussion and timely suggestions. Their technical support and encouragement helped us to finalize our project.

Our special thanks to who helped us a lot through the problems we came across. We are absolutely grateful to all non-teaching staff for their assistance which is key factor behind our project work. We would also like to express our gratitude towards the college for providing us with the best facilities and proper environment to work on our project. Last but not the least thanks to our respected Principal Dr. M. A. VENKATESH for continuous motivation.

Finally we offer our great thanks and regards to our family for their support which helped us through the difficulty and hardships of life to earn this achievement. Ultimately we would like to devote all praise and honors to supreme personality 'God' for grace and inspiration.

- 1) Mr. PRANAV AMBRE [B190103004]
- 2) Mr. SHUBHAM BHADKE [B190103009]
- 3) Mr. ABHISHEK GADE [B190103017]
- 4) Ms. SMITA MANDLIK [B190103044]

ABSTRACT

Now day's we seen that the human being want's the easier life and every time peoples trying to search the several types of result to break the any problems. Sometimes we're uses the machines that will reduce the sweats as well as needed time. So for that we're enforcing a prototype of a robotic vehicle which is Electric vehicle. According to the report the tradition vehicle contributes the 20- 30% of air pollution. Electric vehicle is ecofriendly. Our proposed system works by using a Wi- Fi module for entering the Wi- Fi command being transferred by the driver. The system apply in this study uses DC motor to move the robotic vehicle to the applicable direction using Wi- Fi commands. This robotic car is solving the major problems which is occurs in traditional vehicles like packing, driving. It has capability to smell the terrain and decide the navigation path without any mortal input. So that, probability of accident is reduces. As we're controlling this robotic car using the android Smart- phone also the handicap people's can drive this car.

LIST OF FIGURES

Figure No	Figure Name	Page No
1	Block Diagram of Robotic car Control using Android App	12
2	ESP 8266 Microcontroller	13
3	L293D Motor Driver	14
4	Dc motor	16
5	Ultrasonic Sensor	17
6	Gas Sensor	19
7	9 V Battery	20
8	LED	21
9	Jumper Wire	22
10	Diode	23
11	Capacitor	25
12	Arduino Ide	29
13	Circuit Diagram of Power Supply	32
14	Circuit diagram of Controller	32
15	Circuit diagram of L293D	33
16	Flow Chart of Motor Driver IC	36
17	Flow Chart Of Ultrasonic Sensor	37
18	Flow Chart of Robotic Car	38

LIST OF TABLE

Table no.	Table Name	Table no.		
1	Comparison Table	5		
2	Motor Driver IC specification	14		
3	Ultrasonic Sensor Specification	18		
4	Jumper Wire Specification	22		
5	Capacitor Specification	26		

CONTENTS

Sr. No.			Description	Page No.
			Certificate-I	II III
			Certificate-II Acknowledgement	III IV
			Abstract	V
			List Of Figures	VI
			List Of Tables	VII
			Index	VIII
1			INTRODUCTION	1
	1.1		Abstraction	1
	1.2		Introduction	2
	1.3		Literature Survey	4 8
	1.4 1.5		Need of the project Aim of Project	8
	1.6		Objective of Project	8 8
	1.7		Planning	9
2			HARDWARE DESIGN	11
	2.1		Introduction	11
	2.2		Block Diagram	12
	2.3		Components Required	13
		2.3.1	Node MCU	13
			L293D Motor Driver DC Motor	14 16
		2.3.4	Ultrasonic Sensor	17
		2.3.5	Gas Sensor	19
		2.3.6	9 V Battery	20
		2.3.7	LED	21
		2.3.8	Jumper Wire	22
		2.3.9	Diode	23
		2.3.10	Capacitor	25
3			METHODOLOGY	27
			3.1 Steps In Project Implementation:	27
4			SOFTWARE DEVELOPMENT	28
	4.1		Selection Of Micro Controller Development Tools	28
	4.2		Embedded C	28
	4.3		Arduino IDE Software	29
	4.4		Steps of Arduino IDE Use	31
5			CONNECTION DIAGRAM	32
6			ALGORITHMS AND FLOW CHART	34
	6.1	- 1 1	Algorithms	34
		6.1.1	Algorithm for Node MCU	34
		6.1.2 6.1.3	Algorithm for Motor Driver IC Algorithm for Ultrasonic Sensor	34 34
	6.2	0.1.3	Algorithm for Project	34 35
	6.3		Flow Chart	36
		6.3.1	Flow Chart of Motor Driver IC	36
			VII	

		6.3.2	Flow Chart For Ultrasonic Sensor	37
		6.3.3	Flow Chart For Robotic Car	38
7			DDOCDAMMINO	20
/	7 1		PROGRAMMING	39
	7.1		Program	39
0			ADVANTAGES, DISADVANTAGES AND	44
8			APPLICATION	
	8.1		Advantages	44
	8.2		Disadvantages	45
	8.3		Application	46
9			COST SHEET	47
10				40
10	404		SYSTEM OVERVIEW	48
	10.1		Hardware Overview	48
	10.2		Software Overview	49
11			RESULT	50
12			CONCLUSION	51
13			REFERENCES	52
			APPENDICES	
			COMPONENT DATASHEET1	
			COMPONENT DATASHEET2	
			COMPONENT DATASHEET3	
			COMPONENT DATASHEET4	
			PUBLISHED PAPER	
			CERTIFICATES OF PARTICIPATION	
			THESIS PLAGARISM REPORT	