

Differential drive robot using global positioning system



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FINAL APPROVAL

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Differential Drive Robot Using Global Positioning System

Abstract:

The differential drive robot is a basic type of mobile robots. It has two motors on each side of the robot body. These motors can move independently so we can control the movement of the robot by varying the speed of the motors.

The way differential drive robot works, there is right wheel and left wheel with velocity that can be controlled. So, for instance, if they're turning at the same rate, the robot is moving straight ahead. If one wheel is turning slower than another, then the robot is going to be turning towards the direction in which the slower wheel is. So, this a way of actually being able to make the robot move round.

Our project is based on differential drive movement. The project name is Differential Drive Robot Using Global Positioning System. In this project arduino is used to control the movement of the robot. Arduino is a small credit card size computer that has external General Purpose Inputs/Outputs (GPIO) which can be used in different electronics projects. These General Purpose Inputs/Outputs can be programmed according to the project requirements. The main task of the robot is to reach its destination avoiding obstacles by getting longitude and latitude from cell phone. The destination is given to the robot with the help of cell phone. The arduino is like a brain of the robot. Ultrasonic sensors are used to avoid obstacles and a compass is also used to turn the robot at a specific angle. Raspberry pi controlled through Wi-Fi from the laptop for making videos.

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Dedication

Committed to the regarded educators, guardians and companions

TABLE OF CONTENTS

| | |
|--|---|
| 1. INTRODUCTION TO ROBOT..... | 1 |
| 1.1 A Brief History..... | 2 |
| 1.2 Differential Drive Robot (DDR)..... | Error! Bookmark not defined. |
| 1.3 Problem identified..... | Error! |
| Bookmark not defined. | |
| 1.4 The Project..... | Error! |
| Bookmark not defined. | |
| 1.4.1 Robot body..... | Error! |
| Bookmark not defined. | |
| 1.4.2 Motors..... | Error! |
| Bookmark not defined. | |
| 1.4.3 Hardware (circuits)..... | Error! |
| Bookmark not defined. | |
| 1.4.4 Sensors..... | Error! |
| Bookmark not defined. | |
| 1.4.5 Raspberry pi..... | Error! |
| Bookmark not defined. | |
| 1.4.6 The Power..... | Error! |
| Bookmark not defined. | |

| | |
|--|--|
| 1.4.7 | |
| Software..... | Error! |
| Bookmark not defined. | |
| 2.ROBOTBODY..... | <i>Err</i> |
| <i>or! Bookmark not defined.</i> | |
| 2.1Mechanicalsystem..... | Error |
| or! Bookmark not defined. | |
| 2.2Robotbody..... | Error |
| or! Bookmark not defined. | |
| 2.2.1 Base and upper part..... | Error! Bookmark not defined. |
| 2.2.2 Wheel shaft mounting..... | Error! Bookmark not defined. |
| 2.2.3 Wheels..... | Error! |
| Bookmark not defined. | |
| 2.3ThePower..... | Error |
| or! Bookmark not defined. | |
| 2.4 Motors..... | Error |
| ! Bookmark not defined. | |
| 3.RASPBERRYPI..... | <i>Er</i> |
| <i>ror! Bookmark not defined.</i> | |
| 3.1 The Board..... | Error! |
| Bookmark not defined. | |
| 3.1.1 The Processor |Error! Bookmark not defined. |

| | |
|--|---|
| 3.1.2 SD Card slot | Error! Bookmark not defined. |
| 3.1.3 USB port | Error! Bookmark not defined. |
| 3.1.4 Ethernet port..... | Error! Bookmark not defined. |
| 3.1.5 HDMI connector | Error! Bookmark not defined. |
| 3.1.6 LEDs | Error! Bookmark not defined. |
| 3.1.7 Analog Audio output | Error! Bookmark not defined. |
| 3.1.8 Composite video out | Error! Bookmark not defined. |
| 3.1.9 Power input | ... Error! Bookmark not defined. |
| 3.2 Headers and inputs/outputs..... | Error! Bookmark not defined. |
| 3.2.1 GPIO pins | Error! Bookmark not defined. |
| 3.2.2 DSI connector..... | Error! Bookmark not defined. |
| 3.2.3 CSI connector | Error! Bookmark not defined. |
| 3.2.4 P2 & P3 headers..... | Error! Bookmark not defined. |
| 3.3 Raspberry pi GPIO's..... | Error! Bookmark not defined. |
| 3.3.1 Filesystem..... | Error! Bookmark not defined. |

3.3.2 Languages.....

Error! Bookmark not defined.

3.4 Wi-Fi

configuration.....**Error!**

Bookmark not defined.

3.4.1 Add Wi-Fi adapter.....

Error! Bookmark not defined.

3.4.2 Network configuration.....

Error! Bookmark not defined.

4.MOTOR DRIVE

CIRCUIT.....*Error! Bookmark not defined.*

4.1

Defination.....**Error**

! Bookmark not defined.

4.2 H-Bridge

circuit.....**Error!**

Bookmark not defined.

4.2.1 Why called H-Bridge.....

Error! Bookmark not defined.

4.2.1.1 Stop the motor.....

Error! Bookmark not defined.

4.2.1.2 Rotate in clockwise direction.....

Error! Bookmark not defined.

4.2.1.3 Rotate in anticlockwise direction.....

Error! Bookmark not defined.

4.3 H-Bridge design Using

L298.....**Error! Bookmark not**

defined.

4.4

Design.....**Error**

! Bookmark not defined.

4.4.1 L298 H-Bridge IC.....

Error! Bookmark not defined.

4.4.2 Description.....

Error! Bookmark not defined.

5.MATHEMATICAL

MODELING.....*Error! Bookmark not defined.*

5.1

Description.....**Error!**

Bookmark not defined.

5.2 Accuracy vs.

Simplicity.....**Error! Bookmark not defined.**

5.3 Differential Drive Robot

Model.....**Error! Bookmark not defined.**

5.4

Odometry.....**Error**

! Bookmark not defined.

6.SENSOR INTERFACING WITH

ARDUINO.....*Error! Bookmark not defined.*

6.1

Description.....**Error!**

Bookmark not defined.

6.2 The sensor

module.....**Error!**

Bookmark not defined.

| | |
|--------------------------------|-----------|
| 6.3 The circuit assembly..... | Error! |
| Bookmark not defined. | |
| 6.5 Coding..... | Error |
| ! Bookmark not defined. | |
| 7. ARDUINO..... | 40 |
| 7.1 Arduino..... | Error |
| ! Bookmark not defined. | |
| 7.2 SKM533..... | Error! |
| Bookmark not defined. | |
| 7.3 Bluetooth Receiver..... | 43 |
| 7.4 GY-80..... | 44 |
| 7.5 Simulation..... | 44 |
| 8.CONCLUSION..... | 45 |
| BIBLIOGRAPHY..... | Er |
| ror! Bookmark not defined. | |

List of given figure in this Report

| Figure No | Page No |
|--|----------------|
| Figure (2.1) Differential Drive Moment..... | 7 |
| Figure (2.2.1) Robot Base And Upper Part..... | 8 |
| Figure (2.2.2) Wheel Shaft Mounting..... | 8 |
| Figure (2.2.3) Wheel..... | 9 |
| Figure (2.4) Dc Gear Motor | 10 |
| Figure (3.1) Parts of Raspberry Pi..... | 13 |
| Figure (3.2) Header of Pi..... | 14 |
| Figure (3.3) Raspberry Pi GPIO | 15 |
| Figure (3.4.2) Network Configuration File..... | 16 |
| Figure (3.4.3) Network Configuration File After Editing..... | 17 |
| Figure (4.1) H bridge..... | 20 |
| Figure (4.3) H bridge Design | 23 |
| Figure (4.4.1) H bridge Block Diagram..... | 24 |
| Figure (4.4.1.2) H bridge Pin Configuration..... | 25 |
| Figure (4.4.3) H bridge Layout..... | 26 |
| Figure (5.3) Robot Base Diagram..... | 29 |
| Figure (5.3.1) Robot Position Diagram..... | 30 |
| Figure (5.4) Wheel Distance Cover Diagram..... | 33 |
| Figure (6.2) Ultrasonic Sensor Diagram..... | 36 |
| Figure (6.3) Sensor Circuitry..... | 37 |
| Figure (6.3.1) Complete sensor circuitry..... | 37 |
| Figure (7.1) Arduino..... | 41 |
| Figure (7.2) GPS Module..... | 42 |

| | |
|--|----|
| Figure (7.3) Bluetooth Receiver..... | 43 |
| Figure (7.4) Compass..... | 44 |
| Figure (7.4.1) GPS and Compass Simulation..... | 44 |

List of Table

| | |
|--|----|
| Table 4.1 Absolute Maximum Rating..... | 25 |
|--|----|

CHAPTER 1

INTRODUCTION TO ROBOT

1.1 A Brief History

Contrary to popular belief, the robots are old devices. First great wave of robots began in the late 60s in industrial environments, where work was gradually replaced by automatic robots. The need of robots in industry have been increasing from many years. However, there is still a large gap in the market mainly due to limitations of technology and high prices. Recent developments have increased the capacities of the processors, while the cost is lower. This allows cheap and powerful robots to become a reality in the coming years.