Two Slider Mobile Controlled Robot using Node MCU

Sai Vignesh Ramisetty, Pavan Akkineni, Sujith Krishna Balusu, Bagubali A

Abstract: Arduino is planned as an open-source hardware prototyping stage giving schematics and adaptable advancement units for energetic clients who mean to create intelligent articles or conditions. Arduino can be utilized to detect Surroundings by using different transducers to peruse and decipher contributions to request to make reactions for instance through the controlling of engines or moving of information.[3] In this day and age there is a critical advancement in the field of mechanical control.[1] Versatile mechanical vehicles are light, little and convenient enough to be conveyed by a person. Our plan fills in as an answer for exhibit how the control of the dc equipped engines in coordination of the sign acquired from Wi-Fi module related of Arduino is utilized to accomplish high level of exact way control from the controller to accomplish standard activities like moving at a specific objective area, gathering information and maintaining a strategic distance from any obstacle to forestall impact .In existing writing Numerous works have been done on the usage and examination of the mechanical autonomy for different perspectives like calamity the board, working in atomic zones, photography and military application.[2][4][5]

Keywords: Arduino can be utilized to detect Surroundings by using different transducers to peruse and decipher contributions to request to make reactions for instance through the controlling of engines or moving of information.[3]

I. INTRODUCTION

In this paper, we gives minimized convenient robot Arduino NodeMCU as focal driving utilitarian unit with novel highlights of remote control utilizing Wi-Fi module.[1] The principle commitment of the paper is that it uses the productivity of robot's movement controlling framework .These inventive advancements have possibilities to manufacture a board less correspondence society an emblematic culture among people and robots.

II. OBJECTIVE

The movement of robot controlling through web is one of the simple methods as it requires the client to get to the assigned page to direct it.

This System can be utilized in protection applications for identifying landmines in war field and for bomb discoveries by mounting a metal locator sensor on it. Further, the size of gadget can be scaled down dependent on explicit applications.

III. HARDWARE REQUIREMENT:

A .NODE MCU:

Fig.1

Node MCU shown in fig.1 is an advanced type of arduino which is a combination of various components out of which WIFI module is one of the important components. Actually in 2000s arduino and WIFI module are separately used to transmit data through wireless module. But it seems to be a difficult process s the evolution if node MCU took place. It is designed by taking arduino as a basic model and implemented internal WIFI module to it. Now it became very simpler to connect any component mobile using WIFI which is more standard than the Bluetooth.

B .MOTOR DRIVER
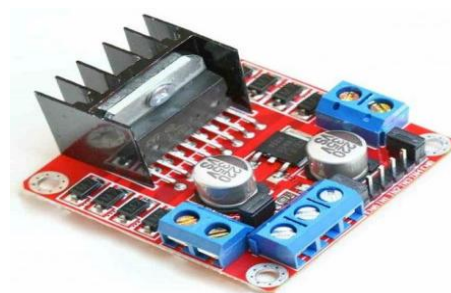
Fig.2

Motor drives shown in fig.2 are circuits used to run a motor. As it were, they are normally utilized for motor interfacing. These drive circuits can be effectively interfaced with the motor and their determination relieson the kind of engine being utilized and their appraisals (current, voltage).[1][4][5]

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Motor Driver IC or Motor Driver Circuits are essentially current and flow speakers which acknowledge the low current and flow signal from the controller and convert it into a high current and flow signal which drives the engine. [6][7]

Motor is characterized as an electric or specialist gadget that can make a movement. While interfacing with the controller; a portion of the engines like DC engine, stepper engine and brush less dc motor may require a driver IC or driver circuit. DC engine is a sort of engine that can change over DC into a mechanical power. In a brush less DC motor, it comprises of a DC power source, an inverted creating an AC sign to drive the engine.[4][5] While stepper engine is a brush less DC electric engine that changes over electrical heartbeats into discrete mechanical movements.[3][4]

C .MOTORS:

Fig.3

Motors shown in fig.3 are used to rotate the wheels; these motors get power supply from the motor driver. These motors work according to the voltage supplied by motor driver.
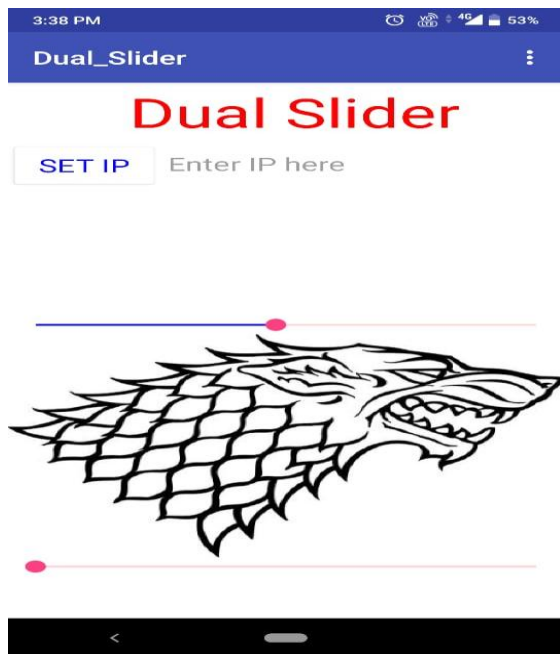
IV.   SOFTWARE REQUIREMENTS:

Fig.4

There are two parts in software. Arduino IDE is used for writing, compiling and uploading the code to NODE MCU. A separate board managers should be installed in arduino IDE applications to use it for uploading the code in NDE MCU and we can know the readings taken from the mobile in serial monitor provide in arduino IDE applications.[7][8][10]

Coming to the mobile app the mobile app shown in fig.4 is created using MIT app inventor which is a user friendly platform for crating apps. Using this app we send the values from mobile to the node MCU on which the voltage given to the motors is dependent.

V.   EXISTING SYSTEM

Working of the Wi-Fi controlled robot is extremely simple, we simply need to Drag or Slide the joystick toward the path, where we need to move the Robot. On the off chance that we need to move the Robot Forward way, at that point we have to drag the Joystick 'hover' in forward bearing. Like we can move the Robot in Left, Right and Backward heading by Dragging the Joystick individual way.[1][3][4] Presently when we discharge the Joystick, it will return to focus and Robot. Blynk App sends values from Two Axis Joystick to Arduino through Wi-Fi medium. Ardunio get the qualities, contrast them and predefined qualities and move the robot appropriately toward that path.[1][2][5][6]

VI.   PROPOSED SYSTEM

A 12 Volt DC Power Supply has been applying to nodeMCU and Motor Driver. The nodeMCU gets input from mobile and gives output to the motor driver. Here there is a Bi-directional communication between the noodeMCU and mobile. Motor Driver is controlled by sliders in mobile app. Thus there is only communication between nodeMCU and Mobile Control Internet.
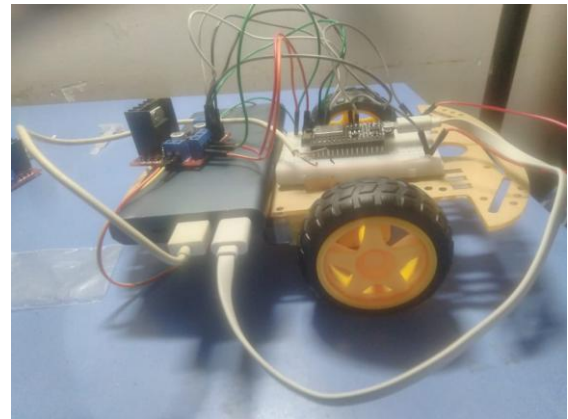
VII.   WORKING

Fig.5

We use node MCU as our essential practical small scale controller since it is more effective than Bluetooth module as its working range is more than contrasted with Bluetooth module. We supplanted ESP8266 and arduino with node MCU.

Node MCU has a particular IP address which is utilized by us to interface our robot with android mobile.[2][3] For this we made an android application utilizing MIT app inventor which takes IP address as info and interfaces our android phone to robot. This application contains 2 slides which are utilized to control the speed of 2 wheels of the robot separately.

By controlling the speed of the wheels we can alter the course of the robot.[4]

The motor driver which is utilized in this robot controls the speed of the wheels from the voltage got from node MCU and this voltage is controlled with the assistance of the application.[1][4] As the voltage builds the speed of the engine increments and with the distinction in the speed of the engine we can alter the speed of the robot i.e. if the speed of the correct side wheel is more than the speed of the left side wheel then the robot turns towards left. Additionally if the speed of the left side wheel is more than that of the correct one it turns towards right.
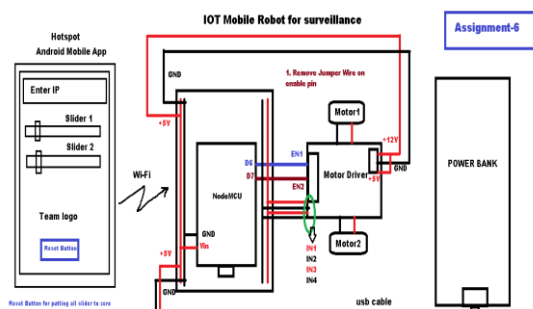
VIII.   CIRCUIT DIAGRAM
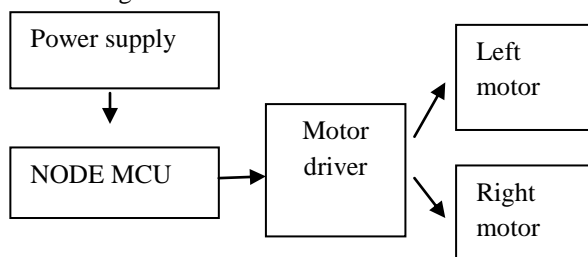

Fig .6

Block diagram:

Fig.7

IX.   RESULT

The robot is now controlled by using the phone. We will send the input from 0 to 1000(speed calculation) and the robot runs accordingly. The result can be seen in the following youtube video - https://youtu.be/rauyOXCYxyw So this is the final result. Some f main results are stored in table 1.

Table 1

Left wheel(speed)	Right wheel(speed)	Robot direction
1000	1000	Goes straight
0	1000	Turns left
1000	0	Turns right

X.   CONCLUSION

We have proposed a new method to control a robot using mobile. By this method we can robot by altering the speed of the left and right wheels of the robot till now we used to control this robot by rotating the front wheels in the direction we want to move it. We increased the hardware efficiency of the robot using NODE MCU instead of WIFI module and arduino.[4][7][10] By further improving this, we can use this in various fields like military, harvesting, fire stations, domestic use, etc. We can also make it work on its own using artificial intelligence and training it.

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