Voice Controlled Tractor Model for Farmers using Bluetooth

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Abstract

Now a days there was an increasing problem in agriculture to field the land by using tractor because of manual operation, only the trained people can drive the tractor. In this paper a voice controlled tractor model was designed using blue tooth for farmers in farm work. It is helpful in the time of feeling tired, un trained peoples can operate the tractor in the field and also handicraft people can able to operate (without blind). In existing system a tractor was operated by manual operation and only the trained people can operate. The proposed system achieved the automatic operation it was achieved by a pic microcontroller and Bluetooth and voice controlled app (Android meet robots). By using this tractor model wheel, plougher and light was controlled using pic micro controller by using Bluetooth app (Android meet robots). Via the Bluetooth app sends the data information to pic micro controller through another Bluetooth which was connected to the micro controller this controls the tractor operation. This helps to increase the field work and becomes most funny. Tractor does not use the fuel for the operation because it was operated by using battery supply because of this fuel usage is reduced.
Keyword- Pic Microcontroller, Android Meet Robots, Bluetooth, Wheel, Plougher and Light

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I. INTRODUCTION

Tractor was the most supportive one in farm works. Tractor systems are widely used in the various fields such as forming and transportation. Recently, more autonomous systems are being developed. Compared to manual operation, automatic systems has advantages of reliability and accuracy. John fowler was invented machines for ploughing and digging. As the world's population surges, farmers are faced with significant challenges to meet food security needs, control costs, and find solutions through innovation. Here's how the automatic voice controlled tractor model using Bluetooth is helping to solve the most pressing issues. Agriculture leader face the need to increase crop production to ensure food stability, reduce costs and environmental impact. The new innovation was help in any one of the way to reduce these problems. However through a combination of innovation and communication are strategic partnerships, it's possible to better understand the obstacles faced by today's farmers and help them find solutions. The major disadvantages of using manual tractors are timeliness considerations, highest fuel and labor costs. And also the handicraft people can't operate the tractor.

By using this voice controlled tractor handicraft people can operate and it useful when man is tired. The man can even use the tractor from out of the land. The basic manual transmission of today still require clutch operation to change operation to change direction. But this advanced version allows direction change such as forward and reverse. In addition it controls the plougher in up and down motion and light.

The automatic operation allows the driver to change the directions using voice control. Bluetooth can be defined as a wireless form of communication that enables devices to send and receive communication. Bluetooth relies on short-range radio technology to allow the wireless connectivity. The key features of Bluetooth are robustness, low power and low cost. Both data and voice transmissions can be handled simultaneously. Bluetooth has better security than Wi-Fi. It has smaller power requirement and Bluetooth can be used in a cordless phone with a 10m range, high range blue tooth are also available. Compared to Wi-Fi transferring capacity and bit rate was high. And for data transfer Bluetooth will be effective. Advantages of Bluetooth

This operations are done by pic micro controller 16f887 and voice controlled app (Android meet robots). The PIC architecture is distinctively minimalist. It is characterized by the following features:
- Separate code and data spaces (Harvard architecture). A small number of fixed length instructions.
- Most instructions are single cycle execution (4 clock cycles). A hardware stack for storing return addresses.

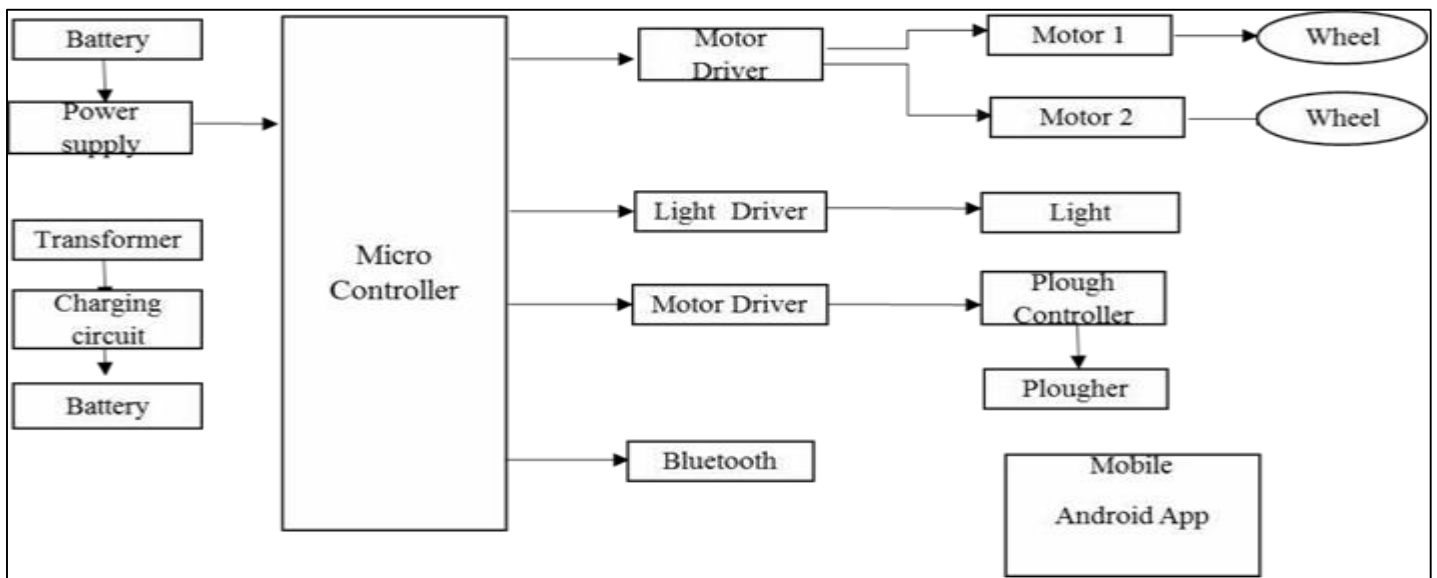## II. PROPOSED METHOD

Fig. 1: android meet robots

Fig. 2: Block diagram of proposed method

A. Hardware Description

1) Micro Controller
A microcontroller is a computer present in a single integrated circuit which is dedicated to perform one task and execute one specific application. In this project pic micro controller 16f887 is used.
This micro controller controls the whole operation. The operating voltage of micro controller is 5v.

2) Power Supply
A power supply is a component that supplies power to at least one electric load.
The supply power is 230V that was reduced by using step down transformer. And the 7805 regulator is connected to the power supply to regulate the power to 5V because the operating voltage of micro controller is 5V.
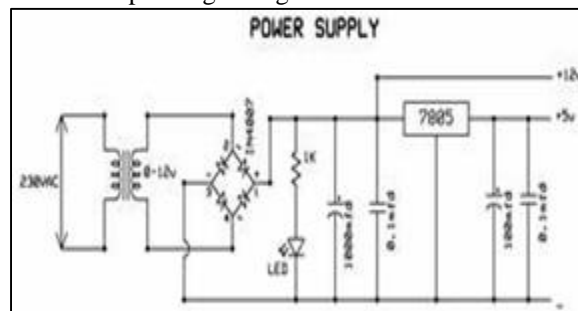

Fig. 3: Power supply circuit

3) Transformer and charging circuit

Transformer is static device that transfers electrical energy between two or more circuits. Here the step down transformer is used. It step down the voltage from 230V to 12V and by using 7805 regulator the voltage was regulated into 5V.

In charging circuit there was a freewheeling diode which is used to block the reverse current. Because of this damage of the system will be avoided. Freewheeling diode only conducts in forward direction.

4) Motor Driver

A driver is an electrical circuit used to control another circuit or component. By using minimum voltage maximum voltage can be able to controlled.

L293 driver is used, 12V can be controlled by 5V. The motor was controlled in forward and reverse direction and plougher in linear motion.

5) Light Driver

A driver is an electrical circuit used to control another circuit or component. By using minimum voltage maximum voltage can be able to controlled.

L293 driver is used, 12V can be controlled by 5V. The light was controlled by on/off.

6) Bluetooth

Bluetooth can be defined as a wireless form of communication that enables devices to send and receive communication.

Fig. 3: Hardware

B. Software Description

The software programs for microcontroller was done by using MPLAB IDE lab. The micro controller program for voice controlled tractor model is,
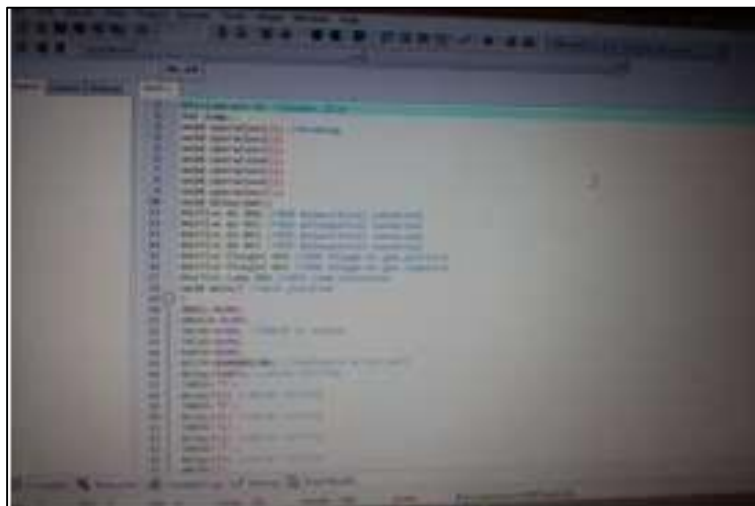

Fig. 3: Software program

III. RESULT

The voice controlled tractor model using blue tooth was successfully designed and operated by using pic micro controller 16f887. And the motor (forward &backward), light, plougher (linear motion) was controlled.

IV. CONCLUSION

The proposed system is useful for operate the tractor with or without the use of human need. It is helpful in the time of feeling tired, un trained peoples can operate the tractor in the field and also handicraft people can able to operate (without blind). This helps to increase the field work and becomes most funny. Tractor does not use the fuel for the operation because it was operated by using battery supply because of this fuel usage is reduced. This system may be replaced by existing and it is better than the existing system.

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