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SPEECH DEPENDENT WHEEL CHAIR CONTROL SYSTEM FOR HANDICAPED AND PATIENTS USING BLUETOOTH TECHNOLOGY

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ABSTRACT

Now day's physically handicapped persons have common needs but they can't ask to others what they want to full fill their needs we are introducing project like This project is developed based on speech recognition module and LPC2148 controller. The system is designed to regulate wheelchair exploitation the voice of client. The objective of this project is to facilitate the movement of individuals who are disabled or unfit and senior folks that aren't able to move well. The result of this design can permit bound folks to measure a life with less dependence on others. Speech recognition technology is a key which can provide a replacement means of human interaction with machines or tools. Thus the problem that they are faced can be solved by using speech recognition technology to move the wheelchair. This can be realized with used the microphone as an intermediary. The results of this project show that this project can be used for future research works and to design excellence innovation that meets market need and public interest.

Keywords-Bluetooth Module, LPC 2148, L293D

I. INTRODUCTION

In this project we are introducing the new concept for the handicapped and elderly people who are not able to move well.This system enables the user to move with a series of indications on an interface displaying a view of the environment and bringing about automatic movement of the wheelchair with respect to the voice instruction of the user, so that the user will be totally independent of others. This project uses a driver IC L293D for the movement of the wheels of the wheel chair. Hence when the user assigns some voice, it generates some digital value and with respect to the value the wheel chair will move forward or backward or right or left respectively.

II. PROPSED SYSTEM

This proposed system is connected to the Voice Controlled chair through that with regard to the voice the wheel chair can provide movement. The whole system is consisting of three sections, the first half is that the controller, we areexploitation LPC2148 controller that takes knowledge from the Bluetooth module and operate the wheel chair .The second half is that the Bluetooth module that access the information from user as a voice and convert to a binary worth and this worth are going to be sent to the controller and also the third part is the driver IC that is employed to drive the direction of the wheel chair. So overall once some voice instruction can go to

controller, the controller will take and in keeping with the data it'll send instruction to the driving force circuit for movement of the wheel chair like forward, backward, and right and left respectively.

Block Diagram

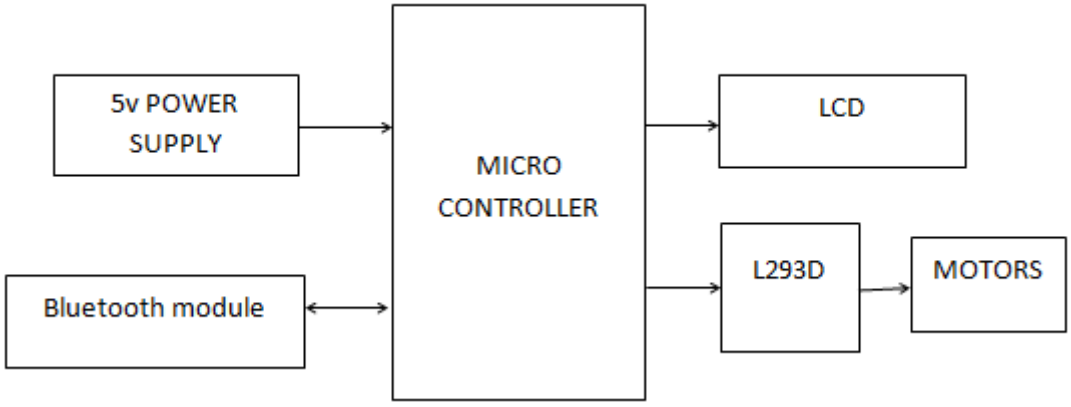


Fig 1: Block Diagram

2.1 LPC2148 microcontroller

The LPC2148 microcontroller board based entirely on a sixteen-bit/32-bit ARM7TDMI-S C.P.U. with period emulation, sixteen-bit/32-bit ARM7TDMI-S microcontroller in a tiny LQFP64 package deal, 8 computer storage unit to forty computer storage unit of on-chip static RAM and thirty 2 computer storage unit to 512 laptop memory unit of on-chip flash memory; 128-bit large interface/accelerator permits high-pace sixty rate operation, In- system Programming (ISP), unmarried 10-bit DAC affords variable analogue output, 32-bit timers/outside event counters (with four capture and 4 examine channels every), PWM unit (six outputs) and watchdog, Low strength actual-Time Clock (RTC), more than one serial interfaces that has two UARTs , rapid I2C-bus (400kbit/s), SPI and SSP with buffering and variable information length competencies.

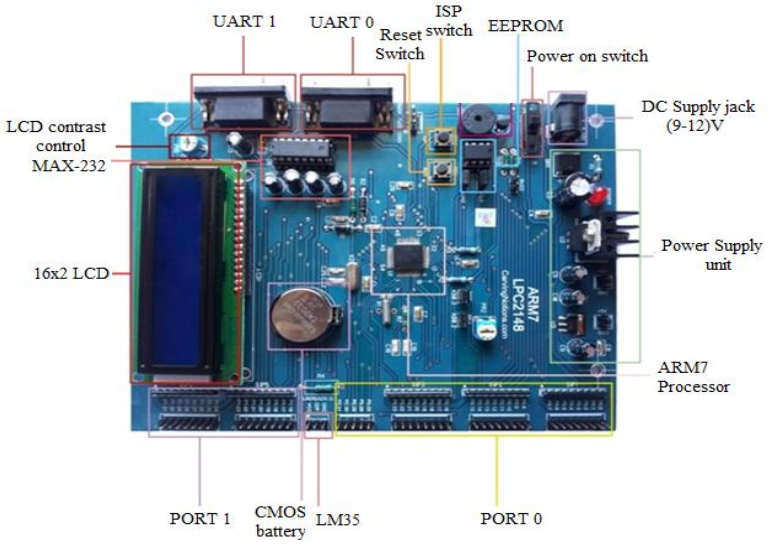


Fig2:-LPC2148 board

2.2 Liquid Crystal Display

A sixteenx2 fluid precious stone alphanumeric showcase implies that it will show 16 characters for every line and there are a couple of such lines. Amid this LCD each character is shown in 5x7 part grid. This LCD has 2 registers, to be specific, Command and data register i.e. information register. The order register stores the charge headings given to the LCD. A summon is partner degree direction given to LCD to attempt and do a predefined undertaking like introducing it, clearing its screen, setting the marker position, prevailing show and so on the information register stores the data to be shown on the LCD. The data is that the ASCII worth of the character to be shown on the LCD.

Fig 3: 16x2 lcd display

2.3 Bluetooth

Bluetooth technology to convergence of data/voice device . Bluetooth is a wireless protocol utilizing short range communication technology of data transmission in fixed and mobile devices. in these Bluetooth devices in creating of wireless networks (PAN).these Bluetooth development was creation of single digital wireless protocol. Bluetooth uses a very robust radio technology called frequency hopping spread spectrum. It chops up the data being sent and transmits chunks of it on up to 75 different frequencies

Fig 4: HC-05 Bluetooth module

2.4 L293D

The l293d are using high-current gain and half-H drivers. The l293d is designed to drive currents of up to 1A at voltage from 4.5vto 36v.as well as relays. It's connecting dc bipolar stepping motors as well as other high current/voltage loads in positive-supply application.

Fig 5: l293d driver IC

III. SOFTWARE DESIGN

In this proposed system, we use LPC2148MC. To program it we use following software equipment.

1. Keil uVision
2. UC Flash

To finish the undertaking on equipment need to installed programming on to the controller utilized as a part of this venture for that reason we need programming software similar to Keil micro vision and glimmer enchantment those are examined in given below.A Compiler is needed on PC however it delivers a PC code. Cross compilers square measure usual produce PC code which will keep running on PCs with a substitution plan or on exceptional reason gadgets that can't have their own compilers. Cross compilers square measure extremely in vogue for implanted improvement, wherever the objective more likely than not couldn't run a compiler. Normally relate degree inserted stage has limited RAM, no plate, and confined I/O ability. Code are frequently adjusted and accumulated on a brisk host machine, (for example, a tablet or working framework workstation) and in this way the resulting feasible code will then be downloaded to the objective to be tried. Cross compilers square measure helpful at whatever point the host machine has a ton of assets (memory, circle, I/O and so on) than the objective.

Keil compiler is one of the compiler that backings a gigantic assortment of host and target blends. It underpins as an objective to eight piece microcontrollers like Atmel and Motorola and so forth. Streak Magic is partner application created by Embedded Systems Academy to allow you to just get to the choices of a microcontroller gadget. With this project you'll have the capacity to delete individual squares or the entire nonvolatile stockpiling of the microcontroller.

IV. WORKING PROCEDURE

The main purpose of this project is to develop advanced wheel chair system that is going to provide a great approach towards the handicapped and elderly people who are not able to move well.

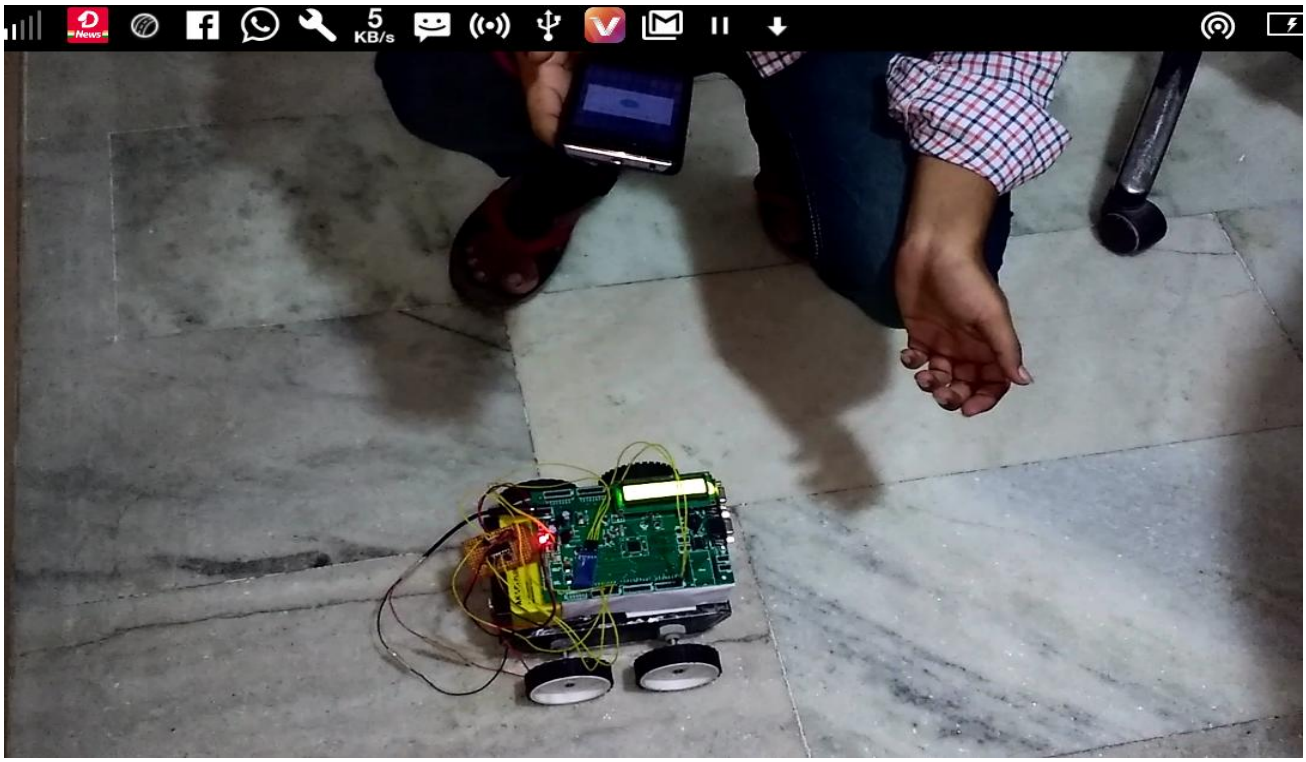
The system consisting of three parts as

1) Controller (LPC2148)
2) Bluetooth module
3) Driver circuit (L293D IC)

The main function of the Bluetooth module is to recognise the voice from the user and convert it to a unique binary values, these unique binary value will be sent to the controller. And the main thing is to interfacing of voice module with the controller follows the UART Serial communication protocol while transmitting data from voice module to the controller. About the programming we have designed the programming such that for each unique data the controller getting, it has different values to sending to the driver IC which will be connected the DC motors fixed to the wheel chair and it starts moving such that forward or backward or right or left etc.

V. RESULT

Here the output of the project ishere we use Bluetoothmodule, with respect to the voice the wheel chair is moving perfectly.



VI. CONCLUSION

Finally conclusion of this project when the user give any voice speech ,the controller will identify the instruction and accordingly gave the instructions to the driver IC and the wheel chair will give the movement such as forward ,backward, right and left respectively.

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