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VOICE COMMANDED ROBOT USING RASBERRY PI

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Abstract -Given the current state of COVID-19 this paper provides medical care help and hygiene. This paper also provides a source of information such as entertainment for patients. Search Google and Wikipedia based on users voice activation and feedback response with a robotic voice by continuing to interact question by machine. It distributes medicines which means morning and evening pills to the patient on request according to the voice input goes forward, backward, turn left and right. It also receives a hand with IR SENSOR & Provides sanitizer to the patient. Troubleshooting a human contact will also follow social isolation. Due to the current epidemic this robot is very useful in the nature of the hospital and the isolation of individuals or patients.

1.INTRODUCTION

This paper incorporates word-for-word and text-to-speech conversions with google cloud console on Raspberry Pi (credit card sizeone computer board) as hardware. This is a personal support program manufacturing and providing infotainment as well. With great honesty, the voice controlled the huge computer. The paper breaks the barrier between adults with modern technology, will provide access to people who can read computers and cell phones. Also, it can be used as a last resort details and data related to your work.It can perform tasks based on voice commands and restore A computer-generated solution with a robotic voice. Also, it can search google again Wikipedia is based on user voice input and returns robotic feedback a voice with ongoing questions about the machine. Checks the weather user location terms.Plays music at the user's voice command. It helps by providing a source of entertainment and information for blind / visually impaired. A voice-based calculator can be used for visual teaching students with disabilities or it could be a game for visually impaired students

2. Body of Paper

2.1 Speech Recognition with Wireless Robot :

In this presentation, the voice recognition system is used as the user interface for use system .. First, we have to provide voice commands with android smart phone that will be with us only. These commands are processes on smart phones and depending on the signals are then sent to the.Bluetooth modem wirelessly connected to the Raspberry Pi board. A small model with a robot is made.Speech is a good way to control robots and communication. Region of speech recognition we will extract, operate independently on the robot's main processing unit (CPU). This a good thing because it doesn't take any great CPU processing power for word recognition. The CPU should simply scan the speech lines from time to time to see if a command has been issued a robot. We can even improve on this by connecting the line of sight to one of the robot's CPU interrupt the lines. By doing this, a known name can cause confusion, making the CPU aware of what is known a word had been spoken. The advantage of using interference is that the voting line of the regional vision line from time to time it would no longer be necessary, to continue to slow down any CPU further.

2.2 Proposed Method :

The meaning of speech recognition can be stated as speech recognition is a means of transforming speech signal e.g. word spoken in word order using an algorithm used.

2.3 System description :

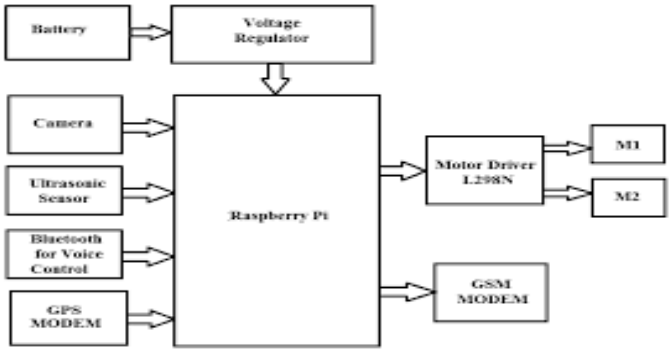

Fig -1 BLOCK DIAGRAM VOICE COMMANDED ROBOT USING RASBERRY PI.

A voice robot that includes a control system is shown on Fig (1) Here is a speech construction a well-known robot is designed for wireless operation.

Large building blocks:

- Power supply
- Android Smart Phone
- Bluetooth modem
- Raspberry Pi
- DC engines with driver

In this work the major modules follow:

1) Raspberry Pi: This is the main part that makes the speech recognition process and controls everything jobs.

2) Driver: we use IC L293D car driver to drive DC engines connected to Raspberry Pi with motor driver IC.

3) DC Motors: DC Motors are used to drive a robot on different sides as each voice received command.

A detailed description of the proposed block diagram and details related to all the steps is given below.

2.3.1 Power Supply:

This section discusses robotic power requirements for DC motors. Power supply is basic you need to design any plans. The Raspberry Pi is powered by a 5v micro USB supply and current current the requirement depends on the connection provided by the Raspberry Pi. In this program, the model B Raspberry Pi used normally between 700- 1000mA current. And with this supply, the Power Bank with 5V.

Fig -2 Power Supply.

2.3.2 Raspberry Pi:

The Raspberry Pi is a series of single-board credit cards compiled by the Raspberry Pi Foundation. It includes a Broadcom system on a chip containing ARM-compatible CPU and on-chip Graphics Processing Unit GPU and memory distances from 256 MB to 1GB RAM. Secure Digital SD cards are used to store operating system and system memory in SDHCs or MicroSDHC sizes. The board has 1 to 4 USB ports, HDMI and integrated video output, and a 3.5 mm audio jack jack. It also has Ethernet. Wi-Fi and Bluetooth port. The raspberry base provides the distribution of Debian and Arch Linux ARM downloads and python is the main programming language where C, C ++, PHP, Java and more are available. Speech synthesis is done using raspberry pi. Hardware: This drawing is shown on a fig tree. 4 is for model A, A +, B, B +. Model A, A + and Zero do not have Ethernet components and USB hub. The Raspberry Pi 2 uses Broadcom BCM2836 SoC with a 900 MHz 32-bit quad-core ARM Cortex-A7 processor, with 256 KB allocated to L2 cache.

Fig -3Raspberry Pi

2.3.3 Bluetooth Module :

A Bluetooth serial module with the same name is compatible; The salt module is and it is compatible with each other. In other words, the function of HC-04 and HC-06, HC-03, and HC-05 is it goes hand in hand with each other. HC-04 and HC-06 are earlier types that the user can reset mode (master or slave). The command set of HC-03 and HC-05 is more flexible than HC-04 and HC-06s.In general, HC-03 / HC-05 Bluetooth is recommended by the user. HC-05 is the latest wireless Bluetooth serial cable. This can be powered from 3.3V to 6V with better attachment. Bluetooth V2.0 + EDR compatible (Enhanced Data Rate) 3Mbps Modulation with complete 2.4 GHz radio transceiver and baseband. Features: Standard sensitivity -80dBm. Up to + 4dBm RF transmits power. Low power consumption 1.8 to 3.6V I / O. Combined antenna. Baud default rate: 38400 and support Baud rating 9600, 19200, 38400, 57600, 1152000, 230400, 460800. Use CTS and RTS to control data distribution. When the master and the slave are paired, a red and blue LED flashes 1/2 in space. It connects automatically to the power storage device as default. Allows pairing device to connect as default. It is therefore connected to a wireless connection.

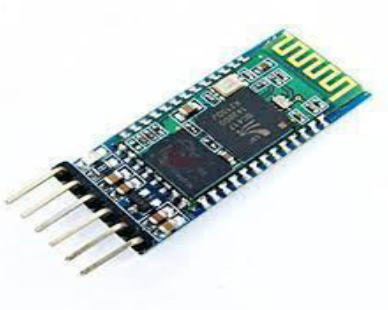

Fig -4 bluetooth module

Motor Driver IC L293D:

This allows DC to drive in any direction. The L293D is a 16 pin IC that can control a set of 2 DC motors simultaneously. It works on the concept of a bridge H that allows the flow force to flow in any direction. H Bridge IC is therefore ready to drive DC Motor. There are two power pins on the l293d. Pin 1 and Pin 9 are there to drive the car so they should be on top to drive the Motor. To drive the left H bridge bridge the allowed 1 pin should be at the top and that the H H motor motor pin 9 pin should be at the top. If anyone pinches from 1 or 9 down the car will stop working. It's like a switch. Pin 2,7,15,10 are 4 input pins. The motors are rotated on the basis of the input provided for all input pins such as LOGIC 0 or LOGIC

1. Features: Wide Supply-Voltage Range: 4.5 V to 36 V
2. Input Logic Installation
3. Internal Installation ESD Protection
4. Thermal Shutdown
5. High-Noise-Immunity
6. Input Applies to SGS L293 and SGS L293D Current Outputs 1 A Per Channel (600 mA for L293D)

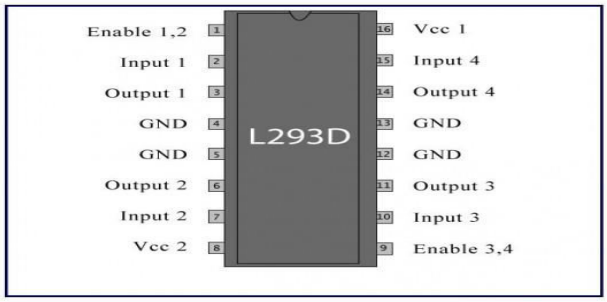

Fig -5 L293D

2.4 Software:

Raspberry Pi uses Linux-kernel-based operating systems. Active supported system is Raspbian and the current release of Ubuntu supports Raspberry Pi 2. Input manager of The Raspberry Pi is NOOBS. The applications that include NOOBS are: Arch Linux ARM, OpenELEC, OSMC and Kodi open digital media source, Pidora, RISC OS first operating system ARM based computer.

2.5 Method of operation:

A voice-driven robot uses speech-translating technology to translate voice commands.This intelligent robot that works with the Word will play an important role in future society.

2.5 Working:

In this presented system, the voice recognition system is used as the optical connector to use the system. First of all, we have to provide voice commands with android smart phone that will only be with us. And the rules are processes on smart phones s / w and depending on the signals and are sent to a Bluetooth modem connected to the board on the Raspberry Pi board. A small model with a robot is made. The robot is driven by 2 DC motors. The Raspberry Pi works with these DC engines with IC L293D and controls a robot accordingly. Voice commands Forward, Left, Right, stop.

2.6 Flow Chart:

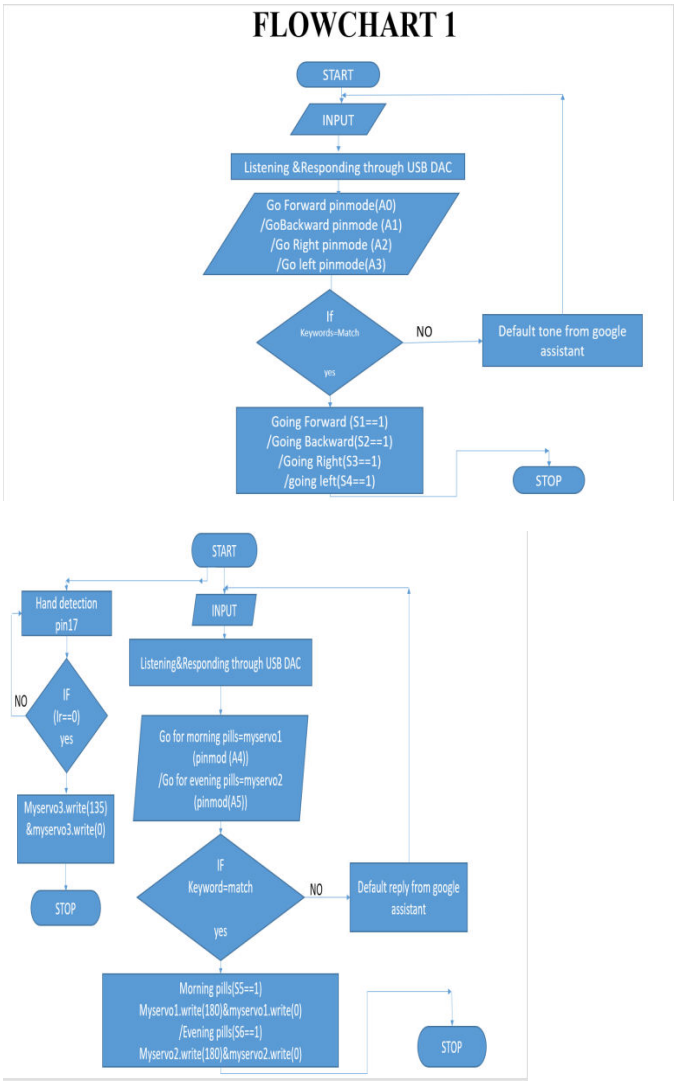

Fig -6 Flow chart of voice commanded robot using raspberry-pi.

2.7 Circuit diagram :

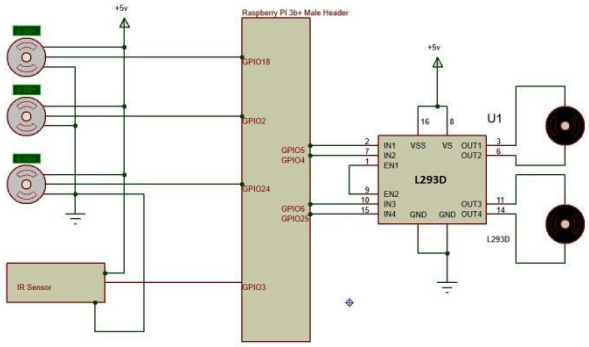

Fig -7 Circuit diagram forvoice commanded robot using raspberry-pi.

2.8 Applications :

- Automatic Hand Cleaner.
- System An excellent system for providing drug tolerance.
- This paper can spread the medicine to patients who are also asking.
- sanitizer to avoid contact.
- Source of information and entertainment for the blind or visually impaired people.
- Can also help an older citizen who can learn to use a computer or the internet.

2.9 Useof Simulationsoftware:

- Linux Operating System
- Python Shell
- Google Cloud Console
- Eagle for PCB making

3. CONCLUSIONS

This Speech-to-Text conversion program is implemented using HMM. After that, the test is spokenWord is targeted by the advanced HMM algorithm. It can be clearly seen that the average recognition rate for95% achieved. Motor drive and prototype control system speech driven by a robot is tested. Thea proposed Raspberry Pi voice robot that brings ease and convenience to people with disabilities.
This hi-tech technology can also improve the safety of users using the standard power-controlled stick

ACKNOWLEDGEMENT

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