Intelligent Friendly Humanoid Robot-A Friend in Need Is a Friend in Deed

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Abstract - Every person in this world need someone who takes care of them ,be with them in every situation let it be sad, happy, tension etc. But due to this busy life and busy schedule all are busy in earning money ,prestige, luxurious life and they tend to forget that their loved ones need them and their time, and because of which some people take wrong decisions in their anger and depression. In order to give time to their loved ones people lend their work to other people or they might keep a assistant or a helping hand without knowing even those people have a family to spend time with. Thinking all this in mind we have developed an humanoid robot which helps u with all your work and even be with u in all your times and never let u take any wrong decision and make your whole day good with positive vibes in it.

We have used- Mild sheet metal is used to build the robot model , DC 60rpm motors for robot to move forward, backward, right, left , DC 30rpm motors to rotate its hands in forward, backward directions , Raspberry pi3 with pi camera for face recognition, once face recognised the ultrasonic sensor will get activated and the robot follows the person whose face is recorded in its data , Voice recognition kit this kit is used to help the robot recognise the pre-saved questions , Apr 9600 voice playback kit which is used to play all the pre-saved answers , Battery here we have used lead acid 12 volts,1.3ah battery to help all the robot run.

KeyWords: positive vibes,assistant,depression,wrong decisions,humanoid robot, busy, money, helping, DC motors, pi camera, voice recognition kit, voice play back kit.

1.INTRODUCTION

Why do we need a human robot? Why is every human dependent on every other person rather than doing his work by his own? Why do every human wants its life to be easy? Why every human wants all work to be done in seconds and minutes rather than in hours? This all "why's" has an answer that is human nature is meant to be easy and wants its life to simple but easy living all the humans are tired to live a busy life and they want someone who can takeaway some part of their work and do it in minutes so that everyone can spend some time with their loved ones.

Other than making work easy the other intention to make this robot is to relief stress, make our day joyfull and with full positiveness. Many people due to workload or due to excess of tension tend to go into depression and they take some wrong decisions under their stress. This robot remove your tension by playing some funny music or some motivational song. As our robot is a less expensive with easy usage and works similar to a bigger robot.

We have used 2 motors where one motor is for drive to follow the person saved in its data and the other motor it for hand rotation. The motor used for hand rotation is DC

30rpm and the motor used for wheels to follow is DC 60rpm. We have used distance sensor i.e ultrasonic sensor for the robot to sense and follow the person recognised. We have used raspberry pi3 with a pi camera which detects and recognizes the person saved in the robots data and all the components used will use raspberry pi to run all its functions. We have used Voice recognition kit this kit is used to help the robot recognise the pre-saved questions, Apr 9600 voice playback kit which is used to play all the pre-saved answers.

2. LITERATURE SURVEY

AI has done a lot for existing robots, but we wanted to design a robot that is right for AI.

Existing robots are too expensive, not safe around humans, and similarly not safe around themselves. With a less-expensive-cost robot, everyone can afford to have their own robot.Researchers have been developing AI for existing hardware.

Most of the existing humanoid robots are:

A. Szalo, Roland & Gontean, Aureal & Sfirat, Alexandru, "Robotic arm control in space with color recognition using Raspberry PI", p. 689-692, 39th International Conference on Telecommunications & Signal & Processing (TSP) 2016 [1]:

In this paper a robotic arm control, with colour recognition, implemented on a Raspberry PI, will be presented. The Raspberry PI is a small super computer which is suitable for almost any embedded project. To it, is connected a Logitech C270 web camera and a USB to serial dongle which does the communication task. The camera pair films the robotic arm and the USB to serial dongle controls the robotic arm. The colour recognition is done with

OpenCV installed on the Raspberry PI. The robotic arm has glued coloured bottle stoppers on the joints which are recognized with colour filtering.

B. Ahmed Imteaj, M A Isfar, Mohammad Farshid, Abdur R Shahid, "RoboFI: Autonomous path follower for human body detection and geo localization for search and rescue missions using Computer vision and IOT", 3-5 May, 2019 1st International Conference on Advances in Science, Engineering and Robotics Technology (ICASERT) **[2]:**

A rescue robot that is autonomous, pursues track way by dint of 3 ultrasonic sensors in the front. For the processing work, Raspberry Pi Model B is utilized which incorporates a grouping of single board processors. The smaller card size is handful as we are utilizing 4wd Car Chassis and a motor controller to drive it through. The robot features computer vision and raspberry pi camera module is used to help with the vision. We trained the camera utilizing algorithm to empower it identify movement, consequently after detecting movement the robot utilizes PIR to detect and affirm human presence. When human life is recognized in a destructed place the web application helps us to observe the live streaming of that found human and the closest environment.

All these existing models have almost the same components and is built for the benefit of humans.

3.BLOCK DAIGRAM

ROBOT BACK

ROBOT FRONT

We have named our robot as RIO which is taken with Robot, Internet Of Things. Body or the model of the robot is made of mild sheet metal.The components we have used are:

1. RASPBERRY PI3 MODULE WITH PI CAMERA.
2. DC 30 rpm MOTOR AND MOTOR DRIVER.
3. DC 60 rpm MOTOR AND MOTOR DRIVER.
4. VOICE RECOGNITION KIT.
5. Apr 9600 VOICE PLAYBACK KIT.
6. ULTRASONIC SENSOR.
7. BATTERY.

A. RASPBERRY PI3 WITH PI CAMERA

RASPBERRY PI3

RASPBERRY PI3 WITH PI CAMERA

The Raspberry Pi operates in the open source ecosystem: it runs Linux (a variety of distributions), and its main supported operating system, Raspbian, is open source and runs a suite of open source software. The Raspberry Pi Foundation contributes to the Linux kernel and various other open source projects as well as releasing much of its own software as open source., but it also provides a set of GPIO (general purpose input/output) pins that allow you to control electronic components for physical computing and explore the Internet of Things (IoT).

The camera is fixed with Raspberry Pi and is used to recognise the face saved in the robot data and follow the recognised face,here camera is also used to see the saves persons emotions like happy,sad,angry and yawning and play some song according to those emotions.For sadness and we have set "LET IT GO" so that the persons sadness is changed to happiness and full of positivity by listening to this song ,for angry,happy and yawning we have set "DOMITO CASITA".We have set all these excitement songa and positive songs because in any situation the person should feel that he has been left alone in any kind off situation let it be sad or happy and he needs someone.

B. DC 30rpm motor with driver
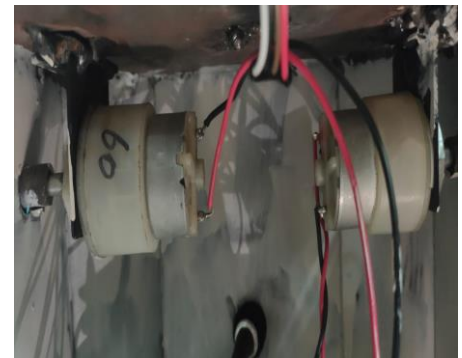
These motors are used to rotate the robots hands front and back. Here the robot shakes it hand while told "hello" and "bye".The motor driver is used to connect the motors to raspberry pi and battery.
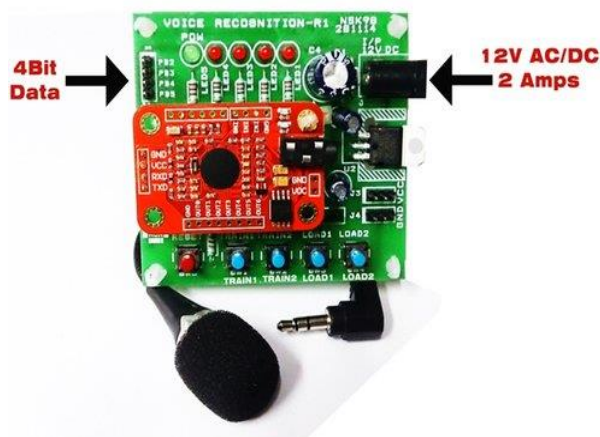
C. DC 60rpm motor with driver

These motors are used to move the robot front,back,left,right,they only follow the people saved in the robots data and they follow when the person is recognised.The motor driver is used to connect the motors to raspberry pi and battery.

D. VOICE RECOGNITIO MODULE

Voice recognition identifies the voices stored in the kit and then glows one light to know that its recognised. Here we have saved four questions and two expressions. The four questions are-
1. HELLO!
2. HOW ARE U?
3. WHAT'S YOUR NAME?
4. BYE RIO.

This kit is connected with voice playback kit and this is all connected with Raspberry Pi3 module.

E. Apr 9600 VOICE PLAYBACK KIT

This voice playback kit is used to play all the pre-saved answers saved in the playback kit. Those answers are heard from the speaker connected to it.Here we have used 8 channel voice kit where we can save 8 voices.We have saved 4 answers and 2 songs for facial expression.

1. HELLO!
2. IM FINE WHAT ABOUT YOU.
3. IM RIO WHATS YOUR SWEET NAME.
4. IT'S A PLEASURE MEETING YOU THANK YOU BYE.

Songs for 2 facial expression-

1. LET IT GO for sadness.
2. DAMITO COSITA for happy,angry,yawning.

This playback kit is connected with voice recognition kit so that the robot can answer the questions asked by the user and it recognizes them and answer them.
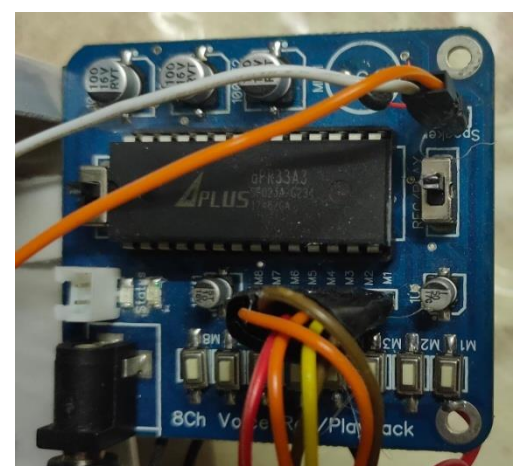
F. ULTRASONIC SENSOR

An ultrasonic sensor uses sound waves to measure distance. The sensor has a transmitter (i.e., speaker) that produces high-frequency sound (beyond the range of human hearing). The sensor has a receiver (i.e., microphone) that detects the echo of the high-frequency sound when it reflects back from an object. This sensor is used to recognise the distance of the person identified on the camera and follow the recognised person.

G. BATTERY

Here we have used lead acid 12 volts,1.3ah battery.This is an rechargeable battery which can be charged once battery low.

4.FUTURE ENHANCEMENTS

1. We can fix a knife,cleaner,and some vacuum to clean dust cook food and do all the household work.
2. We can fix music system and some news like hoe alexa works.
3. We can try to make it speak by itself without any presaved answers and make the robot recognise more than 10 people.
4. Make it brainy to do all the office work or any work said to it with less time and with better performance.

5.CONCLUSION

1. The intention here is to build a device to make every individual's life easy and fill it with joy and happiness.
2. And make the world a better place to be, by reducing sadness in people's lives.
3. By making more and more robots like this we can increase the development of our country as robots can work faster than humans.
4. And can replace two humans work with one.

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