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STRATEGIC APPROACH TOWARDS DEVELOPMENT OF ANDRO HUMANOID ROBOT

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ABSTRACT

We are working on a humanoid robot (2), which is a very high-tech concept for the human society. This robot behaves like a human and also it can do everything a person can do. In fact, we were trying to make a domestic robot but we thought that this robot has such a capability like human. We have used artificial intelligence (1) (AI) in order to give this robot an advanced feature, which works according to the order given by us, using its own ideology. This robot has ability to interact with human and also answers the questions that are asked by humans. We have used the vision kit with AI in that it helps in identifying any object. We have used used Step climbing robot (9) without using feet, which enables it to climb stairs easily. Especially we are preparing a robot for defence, with bomb squad and border patrolling tops. along with defence, we are preparing this robot for working for industrial area as many robot are being used in the industrial area which is not so advanced that they can do a celebration with human and only work on given voice command and our robot also has the capability to recognise things and can also identify human touch so that we can simplify them and make careful work.

KEYWORDS: Human robot, Human, artificial intelligence.

1. INTRODUCTION

Today's era is the era of the robot; it is a new concept for today's human being that is taking shape today. In today's era, we are using robots without using human ability which is proving to be more work efficient and save time saving than human. In the way we assist in small robotic equipment, in the areas of defence in the areas of the cities and in other development task in the cities, we use the fullness humanoid robot (2) which will not be a small device and replicate a complete man who will be able to work in every area. The research began by envisioning the ideal robot form for use in human society; the robot would need to be able to man oeuvre between objects in a room and be able to go up and down stairs. For this reason, it had Step climbing robot (9).

We have design robot using artificial intelligence (1) which can make this decision without any human intervention and it can periodically update itself which makes it different from other robot. It is based on voice recognition, so that we can run it through different type of command which make it more popular advance we have primarily put more than 25 commands so that it can run. We have used robotic arms in it which can pick up the objects and it is helpful to move from one place to next. In order to make robot advanced, we have used a vision kit in which it has been working with artificial intelligence (1)and working more efficiently more efficiently without any human intervention in many areas. When we cannot run it by orders, otherwise it will be able to recognize the object with the help of vision kit and it can do the necessary task with the help of artificial intelligence.

2. PROBLEM DEFINITION, OPPORTUNITY IDENTIFICATION AND SOLUTION PROPOSAL

This is the world of Artificial intelligence (1)(AI) and based on robot. Robot is the part of our life not only in industrial field but also with human's daily routine. Now a day every person wants accuracy and also wants to save time. For which robot is the best option. Just give command to a robot and it will do the work which you want. In an industry, we are using CNC and PLC based robotic arms which are not enough. In a city or town, we

are using cops and camera (7)s whole night for surveillance and also for helping civilians. Also in a border surveillance and road mapping we are using soldiers which are very dangerous.

In our solution we are proposing Aundro Humanoid robot (2) to reduce human efforts and interference increases the accuracy of working and decreases the time. Our Aundro Humanoid robot (2) help in a domestic work like an assistant, maid and helper of family members. It has also the ability to interact with family members and do their work. it can also serve things to the family members and also using robot at a city and town for surveillance by replacing a cops like it can help civilians to provide path where they want to go and whatever they want to know about the city with the help of its intelligence interactive application it can also do a surveillance day and night and it can also identify unwanted activity or crime and inform to a cop very frequent time it can also do patrolling at a night which reduce human effort and fuel cost . In a sector of defence we can use robot for security purpose as well as border patrolling.

Specially we are focusing the application of our Aundro Humanoid robot (2) for the defence sector. Now a day's terror activity are increase day by day. Terrorist group implant bombs in crowdie areas railway station. In such situation we find bomb, the public is totally dependent on bomb squad. It involves risk for the bomb squad to address such a problem; we can use IVY (artificial intelligence (1) robot) which can identify the bomb, gives information to intelligence agencies with the help of vision camera (7)s. It can defuse the bomb without any lose of soldiers in case of any complications and save his life. In our robot we are using explosive sensor which detect explosive when the terrorist group transport it from one city to another city or implant somewhere. Our robot easily detects the explosives. With the help of vision camera (7) our robot captures the image of vehicles number plate or vehicle and they directly give information to our Indian agencies which is the most useful feature technology for Indian army.

3. DEMONSTRATION OF TECHNOLOGY INTELLECTUAL PROPERTY

We had used internet, books, magazine technical literature and articles as a reference of technical aspect of our robot. We had made it based upon artificial intelligence (1)(AI) Aundro Humanoid robot (2). In a robot, we have attached robotic arm, robotic finger for griping the object, step climbing legs, robotic head, raspberry pie for a neural schema of robot + AIY voice kit (5) and we have also attach with the speaker and mic. We are using Arduino Mega which increases the GPIO pins; GPS (6) cumpas provide navigation technology to robot. We are using camera (7) for image sensing, camera (7) recording 3D mapping. We have added motors which give a motion to a robot and also help to put the weight of the goods. UV sensor sense the distance of the obstacles. We are using SMPS for power supply to whole mechanism.

4. COMPONENT AND PARTS

A. Raspberrypie:-

Fig. 1 Raspberrypie

It is a micro processer which we is using raspberry pie(3) like a main processing unit which is give command and operates motors camera (7) and all type of sensor.

B. Ardiuno mega :-

Fig. 2 Ardiuno mega

We are using arduino mega for increasing the GPIO pins basically it will interact with the raspberry pie. When we give command to raspberry pie it will through the ardiuno.

C. AIY voice kit (5):-

Fig. 3 AIY voice kit (5)

AIY voice kit (5) is use to control the robot by a human voice because it's a voice recognizer robot and also make a Artificial intelligent(1) advance robot and it also make a smart robot which also able to interact with the humans it's also have a ability to give answer whatever they ask.

D. SMPS Module:-

Fig. 4 SMPS module

We are using SMPS for a enough power supply to robot in alternative we are also using battery but for operating a whole mechanism we need enough power supply with respect to the required voltage and current.

E. Motor:-
Motor is a device which gives the motion as per requirement so we select the motor with considering required torque and speed so that's why in different part of body we are using different motors.

1. DC geared motor:-

Fig. 5 DC motor

DC motor is attached with step-climbing robot and base of the robot which gives the motion of the robot to move multiple directions with the help of command which is give by the raspberry pie.

2. Servo motor:-

Fig. 6 servo motor

Servo motor is use to give motion to a finger with the main processing unit we are using it becauseit is a like weight and good connectivity with micro controller.

3. Stepper motor

Fig. 7 stepper motor

We are using stepper motor it will gives a motion to a robot elbow, shoulder, head to a required direction and it will also interacted with the main processing unit.

F. GPS and cumpas:-

Fig. 8 GPS module

We are using GPS (6) & cumpas for navigation given coordinate to a robot by micro processer this will helpsto give correct path to a robot.

G. Camera (7):-

Fig. 9 Camera (7) module

Camera (7) is use to connect the internal part of an robot with Environment with the help of image processing and 3d scanning and it also help to capture photos and videos.

H. UV Sensor

Fig. 10 UV sensor

UV sensor is use to identify and measure the opstical distance and it will inform to micro processer.

I. RF module:-

Fig. 11 RF module

It's a voice controlled humanized robot but we are also controlled robot by the RF controller it's a 8 channel of controller and receiver.

J. Li-on battery (8):-

Fig. 12 Li-on battery (8)

ts alternative source of energy which helps to provide sufficient power to whole parts of the robot.

K. Step climbing robot (9):-

Fig. 13 Step climbing robot (9)

Step climbing robot (9) is the main part of the robot it is a base of a robot which carry the whole body and it's receive the coordinates from the circuit.
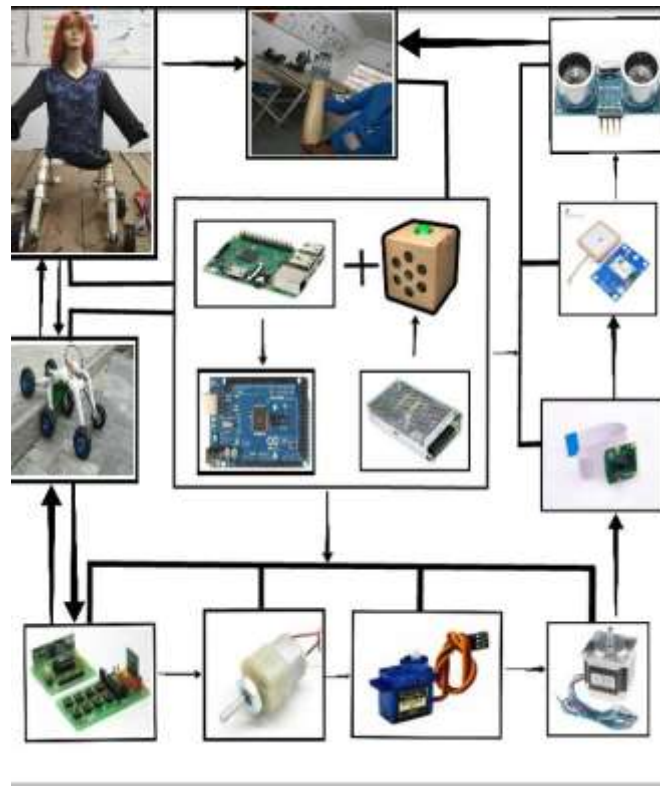
L. Robotic hand (10):-

Fig. 14 Robotic hand (10)

Robotic hand (10) made with the help of servo motor which is operated with the help of main processing unit which is connected to the robot.

5. CONNECTIVITY OF COMPONENT

Fig. 15 Connectivity of component

6. WORKING OF OUR VOICE RECOGNIZER HUMANOID ROBOT

Our robot has been provided the image processing technology system which fully based on vision kit which provides the intelligence to the robot. When we say something to a robot, voice kit recognizes it in form of analog signal which go to the raspberry pie(3) which covert it to the digital signal. Raspberry pi give command to arduino to send frequency or signal to respective component. In case of image processing. Camera (7) identifies garbage's that we have already feed into the micro processing unit (raspberry pi). For image processing of our robot, we enable the API and CV1, CV2 and the newest CV9 which is help to identify the objects. Whenever its sees dusty home, it will automatically clean the things as like at the city surveillance when she will seen something unwanted things she will automatically gibe information to the cyber cell, to whole the image processing system based on the artificial intelligence (1)which is we provided to our robot with the help of AIY voice kit (5) and raspberry pi which is gives a functionality to process the image which is capture by the camera (7) that is connected with the raspberry pi or robot.
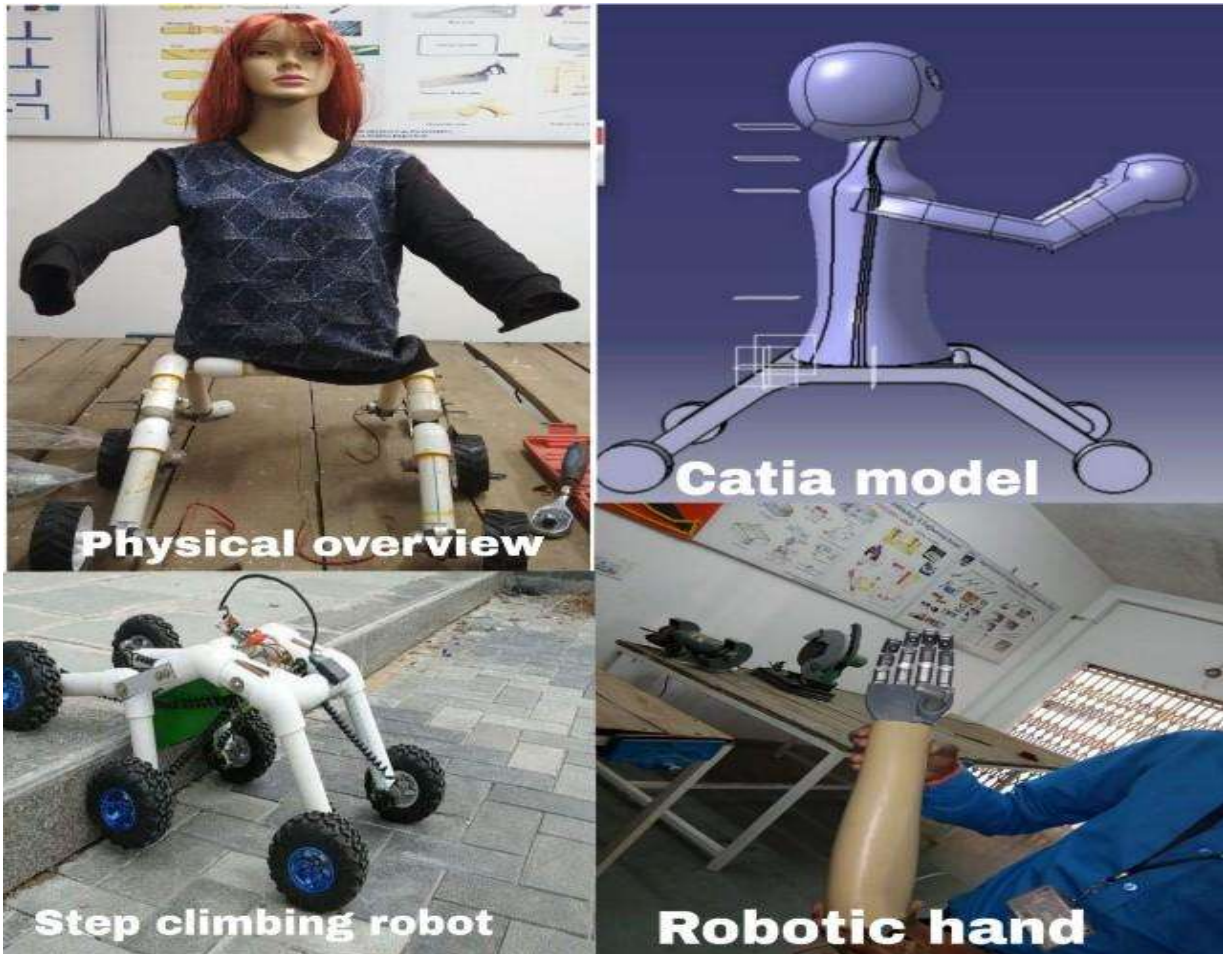
Physical Overview

Fig 16 physical overview

Accessories of the robot

A. Vacuum cleaner:

Vacuum cleaner sucks small object and also the dust particle which is harmful for human species. It is aattachable and detachable component which we are using in our robot it's directly connected with the image sensing of camera (7) and raspberry pi.

B. Grass cutter and wiper:

This is also a attachable and detachable component whenever we want to operate this component we easily attach this component in the robot and helps to cut grass and wipe the floor of home and it also connect with main processing unit.

7. APPLICATION OF ROBOT

a) Voice recognizer human robot.
b) It can climb stairs.
c) Its have robotic arms and robotic fingers.
d) It can interact with human also its have ability to give answer.
e) It's based upon artificial intelligence.
f) It can do domestic work like servant and also manage domestic chores.
g) It can easily navigate and find the correct and easiest path with the help of GPS (6).

h) It have portable vacuum cleaner and grass cutter.
i) It also control by the radio frequency.
j) It used in defense sector and also used in city for the surveillance.
k) It can record videos and capture photos.
l) Portable and affordable robot.
m) Easy to operate.

8. CONCLUSION

By analyzing market trend & market need of robot we found the solution that is market need low cost and easy to operate robot but main thing is that we have to made AI based robot which can do the thing with help of voice recognize and self controlled and we can use it in any field which can do things like a humans. It's based on green revolution theme which helps to overcome the pollution and also it participated in swatch bharat mission and also created for the development phase of smart cities. Robot present in a market which is based on artificial intelligence are very costly and not affordable to common man but our robot was not so much costly and easy to operate, its cost around 35000 rupees.

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