VOICE CONTROLLED WHEEL CHAIR WITH VIDEO SURVILLENCE FOR PHYSICALLY CHALLENGED PEOPLE

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1. INTRODUCTION:

After several studies andsurvey, it results that children and adults benefit substantially from access to a means of independent mobility. Though many disabled people can be satisfied with traditional manual or powered wheelchairs, there is a group of disabled community who find it difficult to use wheelchairs independently [1].Hence many researchers have used several technologies to make a wheelchair accessible to use for this population. Several wheelchairs have been developed with several control devices [2]. Hereit will be better to design a smart wheelchair using voice recognition (VOBOT) via smart phones. With the growing speed of technologicaladvancement, smart phones have become the essential components of our daily performance and so, for their convenience, we use smart phones to control the wheelchair. Hence, we will develop a unique android application named VOBOT,to receive the voice commands and send it to the microcontroller for control. The vobot application is developed using MIT app inventor-2.The AI2 emulator is used to build and emulate the application into VOBOT.apk. Itis also planned to addobstacle and edge detecting sensor which are designed mainly for blind people. This vobotic wheelchair also containsa special feature through which a physically challenged person can contact a doctor or his personal care taker when facing physical illness or any dangerous situation.The proposed work is to design and develop a smart wheelchair using voice recognition and a VGA camera for surveillance. It can be used efficiently with less efforts by the users so that they can use it independently and easily.

2. OBJECTIVE:

More than 1 billion persons in the world have some form of disability. This corresponds to about 15% of the world's population. The aim of this project is to realise a vobotic surveillance wheelchair with video surveillance that will allow disabled people to gain mobility and independency at low cost. Our design focuses on economic feasibility and affordability of poor and middle class differently abled people

3. METHODOLOGY:

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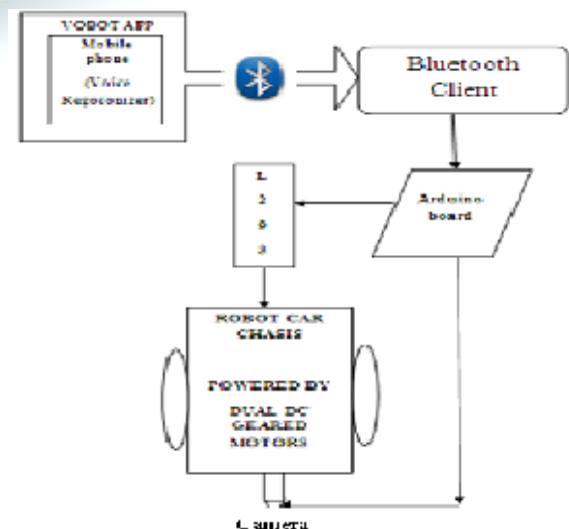
4. Bluetooth module (HC 05) is a wireless technology standard for exchanging data over short distances (using short-wavelength UHF radio waves in the ISM band from 2.4 to 2.485 GHz) from fixed and mobile devices and building personal area networks (PANs) [3]. Range is approximately 10 Meters (30 feet).**Arduino** is a hardware and software company, project, and user community that designs and manufactures computer open-source hardware, open-source software, and microcontroller-based kits for building digital devices and interactive objects that can sense and control physical devices. **L293D** is a typical Motor driver or Motor Driver IC which allows DC motor to drive on either direction. **L293D** is a 16-pin IC which can control a set of two DC motors simultaneously in any direction [3]. It means that we can control two DC motor with a single **L293D** IC. A VGA camera of 2 megapixels is fixed in front of the wheel chair for the surveillance purpose. A unique android application named VOBOT.apkwill be developed to control the vehicle using voice commands. The android application is developed using MIT app inventor 2. We plan to use Google voice services for our application.

BLOCK DIAGRAM:

Fig 1. Block Diagram of voice controlled wheel chair with video surveillance

A mobile phone is connected to the Microcontroller board with the help of Bluetooth module. When the voice recognizer recognizes the voice of the persons, the Arduino board drives the motor driver according to the voice command given by the person. The camera automatically records the video and transmits to the mobile phone for the surveillance purpose.

5. CONCLUSION:

We hereby conclude our proposal by providing a vobotic wheelchair with video surveillance which will allow disabled people to gain mobility, independency and remote video surveillance at low cost particularly focused for economic feasibility and affordability of poor and middle class differently abled people. The whole system is to be developed using the above mentioned hardware and software components. The mobile application thus developed will be unique and user friendly to operate the wheelchair.

6. REFERENCES:

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