



PROJECT PROPOSAL

VOICE CONTROLLED WHEELCHAIR FOR HANDICAPPED

GROUP NO: G4

GROUP MEMBERS:-

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GOALS:-

1. The aim of this project is to use wheelchair automatically for moving forward, backward, Left & Right. The overall objective of this project is to restore autonomy to severely disabled people by helping them use independently a power wheelchair.

DETAILED DESCRIPTION :

SPEECH CONTROLLED:-

In this project we use microphone to control the wheelchair. The audio signal which is converted to electrical signal goes to the HM 2007 module to recognize the voice signal which has been trained to the module. The human voice should be trained to the voice module at the beginning before we give some command to the module. When the voice is trained to the voice module and when any input voice command is given to the module, the module converts the voice to binary codes i.e., the output of the module. With the binary outputs we control the wheelchair having possible movements that are forward, backward, stop, right and left. The output of the module is being interfaced with the

arduino where the arduino will process the output of the module for the motor direction and control.

GESTURE CONTROLLED:-

To recognize the gesture an accelerometer is used. The movement of the hand is used as gesture. The movement of the hand is taken as input to the accelerometer while accelerometer produces different voltages in three different axis. This output from accelerometer is taken as input to arduino where arduino uses this voltages to control the motors for the movement of wheelchair.

REQUIRED HARDWARE:-

- VOICE RECOGNITION MODULE (HM 2007)^[1]
- MOTOR DRIVER MODULE
- **200rpm** DC GEAR MOTOR (4 UNITS)
- 12v BATTERY (ONE UNIT)
- ARDUINO (ONE UNIT)
- WHEELS OF MEDIUM SIZE (4 UNITS)
- CAPACITORS 33pF (10 UNITS)
- RESISTORS 10 Ohms (10 UNITS)
- SMALL CHASSIS TO SUPPORT WHEELS AND THE CIRCUIT ITSELF (ONE UNIT)
- ACCELEROMETER^[1] (ONE UNIT)
- BLUETOOTH MODULE^[1] HC-06 (ONE UNIT)
- H-BRIDGE (ONE UNIT)
- SOCKET 40 PINS (ONE UNIT)

DELIVERABLES:-

The final outcome of the project would be a wheelchair that can be controlled through voice of the patient. This wheelchair would be helpful to the handicapped as well for the care-takers who need to drag the chair manually involving huge amount of energy.

FURTHER IMPROVEMENT:-

USING BLUETOOTH:-

If time permits along with accelerometer we would implement an additional feature using bluetooth where a caretaker for a particular patient can control the wheelchair through his/her android phone using bluetooth communication thereby reducing the manual work in dragging the chair with his/her hand.

[1]NOTE:-

If the speech module is not available, we have decided to implement the project using accelerometer. So that the movements of wheel chair are gesture controlled.