Project Overview

Title: *Voice Based Smart Wheelchair for Physically Impaired Persons*

Team members :

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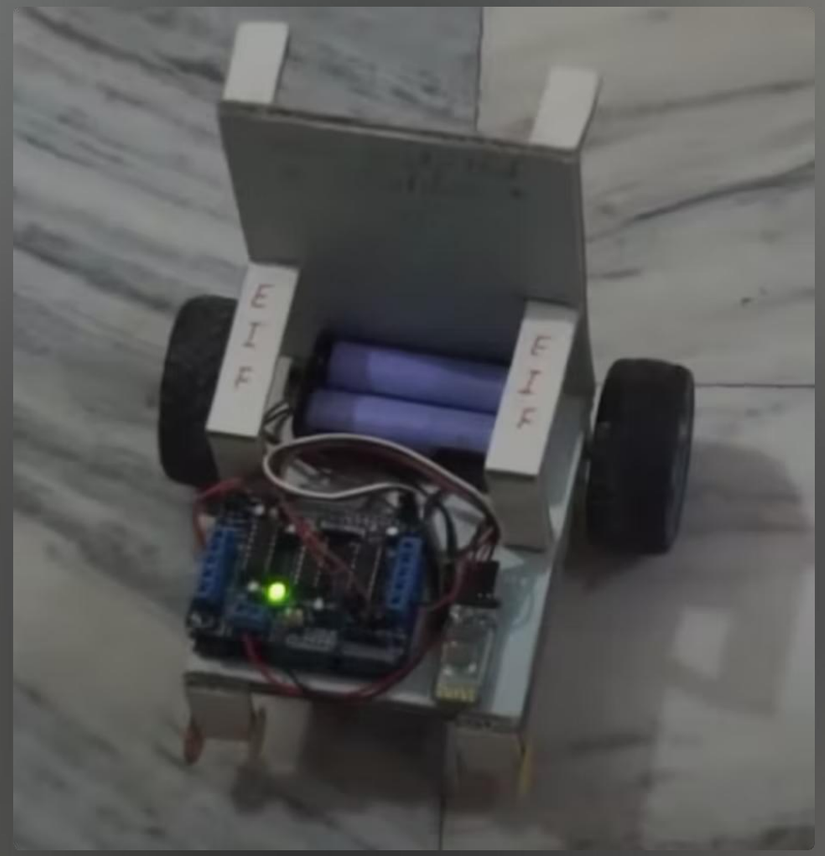
Project Overview

Voice Based Smart Wheelchair for Physically Impaired Persons

What is the Project? *A Bluetooth-based, voice-operated wheelchair system to help people with severe disabilities. The user sends directional commands (forward, backward, left, right, stop) through an Android app using wireless voice recognition. These are transmitted to the wheelchair via a Bluetooth module and processed by an Arduino Uno to actuate motors. Movement executes.*



Project Novelty

Hands-free, wireless voice control

No joystick or manual input needed—ideal for the severely disabled.

Low-cost, accessible hardware

Arduino Uno, HC-05 Bluetooth, MIT App Inventor app, motor driver.

Expandable for future tech

Can be adapted to include solar charging, GPS, or even mind-control using EEG signals.

Bill Of Materials (BOM)

S.No	Component	Quantity	Purpose	Estimated Cost (₹)
1	Arduino Uno R3 with cable	1	Microcontroller	478
2	L298N Motor Driver (2293D)	1	Controls DC motors	110
3	Jumper Wires (40 Pin, 30cm)	As needed	Circuit connections	53
4	BO Geared Motor	2	Moves wheels	272
5	Wheels (with motors above)	2	Wheel movement	Included in motor cost
6	Bluetooth Module	1	Android–Wheelchair Link	234

Block Diagram

Android Phone

(voice app, via Bluetooth)

Bluetooth Module (HC-05)

(wireless communication)

Arduino Uno

(main controller)

Motor Driver (L298N)

DC Motors

(wheel movement)

12V Battery

(power supply)

Chair movement

(according to input)

Flowchart

01

User provides voice command to mobile app

02

App sends command to wheelchair via Bluetooth

03

Arduino receives and processes command

04

Execute movement

05

Repeat for all new commands