

EOG Control Wheelchair for Quadriplegics Patients

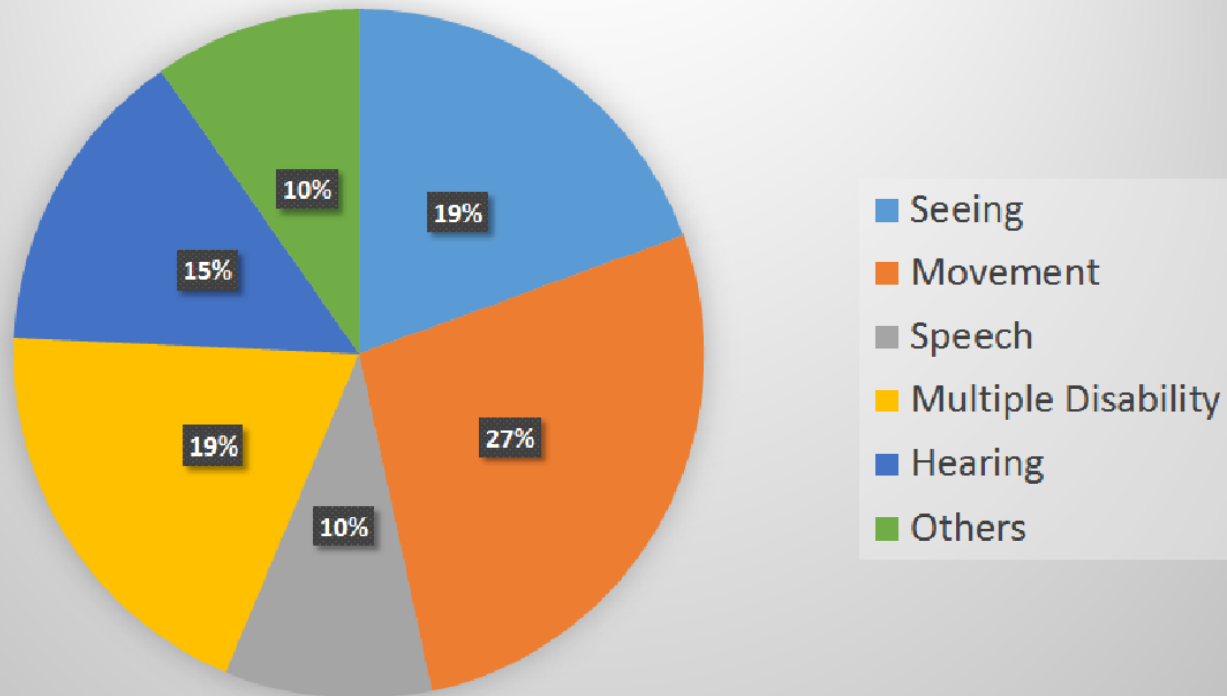
Presented and Demonstrated By:



Our understanding of the challenge

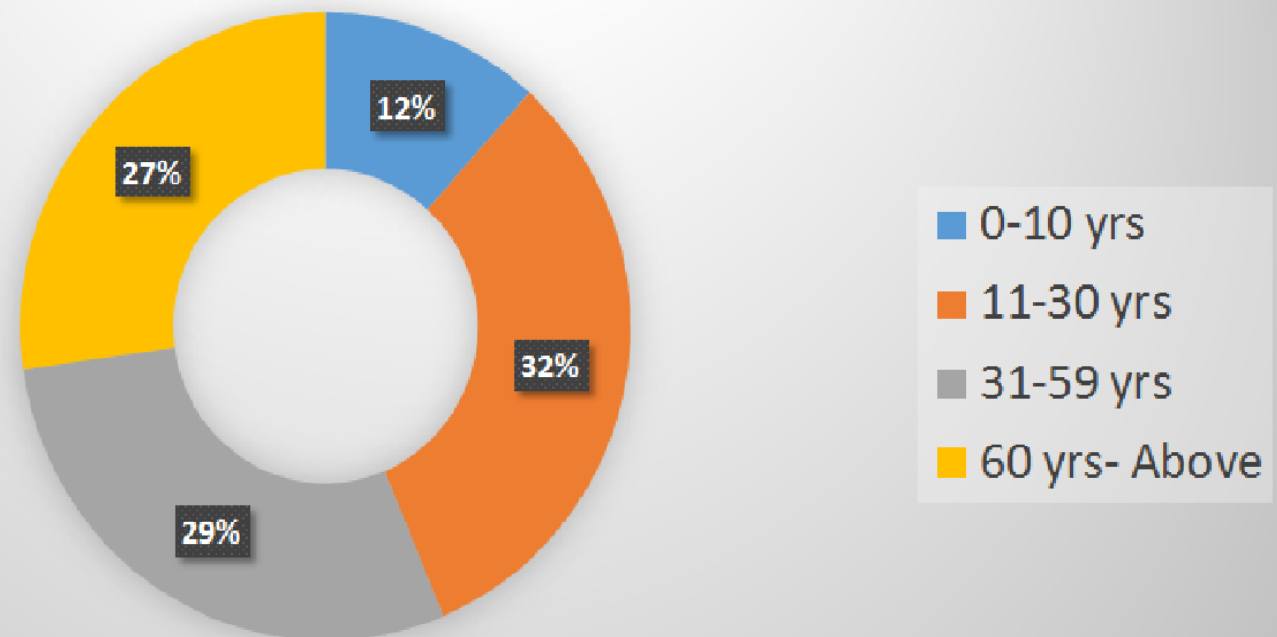
- Elderly People definitely needs care at there age especially at the age above 60 yrs.
- When a person gets old they suffer from lot of diseases including Osteoarthritis and joint pains
- Solution to fight against paralysis is very less.
- Current technology to give movement flexibility to the PwD person costs a huge amount and not available in India.

Disabled population by type of Disability in India Census, 2011



Source: Ministry of Statistics and Programme Implementation (msoi.gov.in)

Percentage distribution of Disabled population by age group in India Census, 2011



Source: Ministry of Statistics and Programme Implementation (msoi.gov.in)

Proposed Solution

- The wheelchair is controlled using eye signal known as Electrooculogram Signals
- Our model costs fraction of the available Elderly care support technology
- Make it easy handle and can be configured by any person
- Implementing wireless technology to avoid complexity

Objective

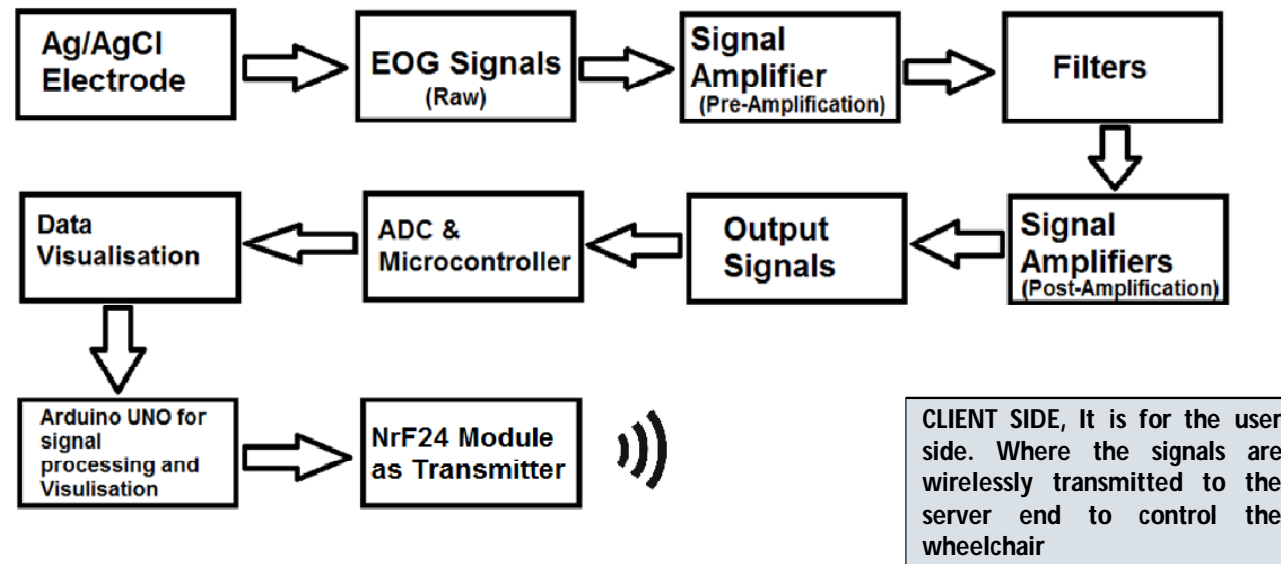
- To identify the hyperpolarization and depolarization existing between retina and cornea that produce the Corneal-Retinal Potential (CPR) that uses as a form of EOG signals.
- Making the system totally wireless and remove complexities
- Making the motor work after getting the signal
- And making it easily upgradable or customisable
- **MAKING IT SAFE**

Expected Outcomes

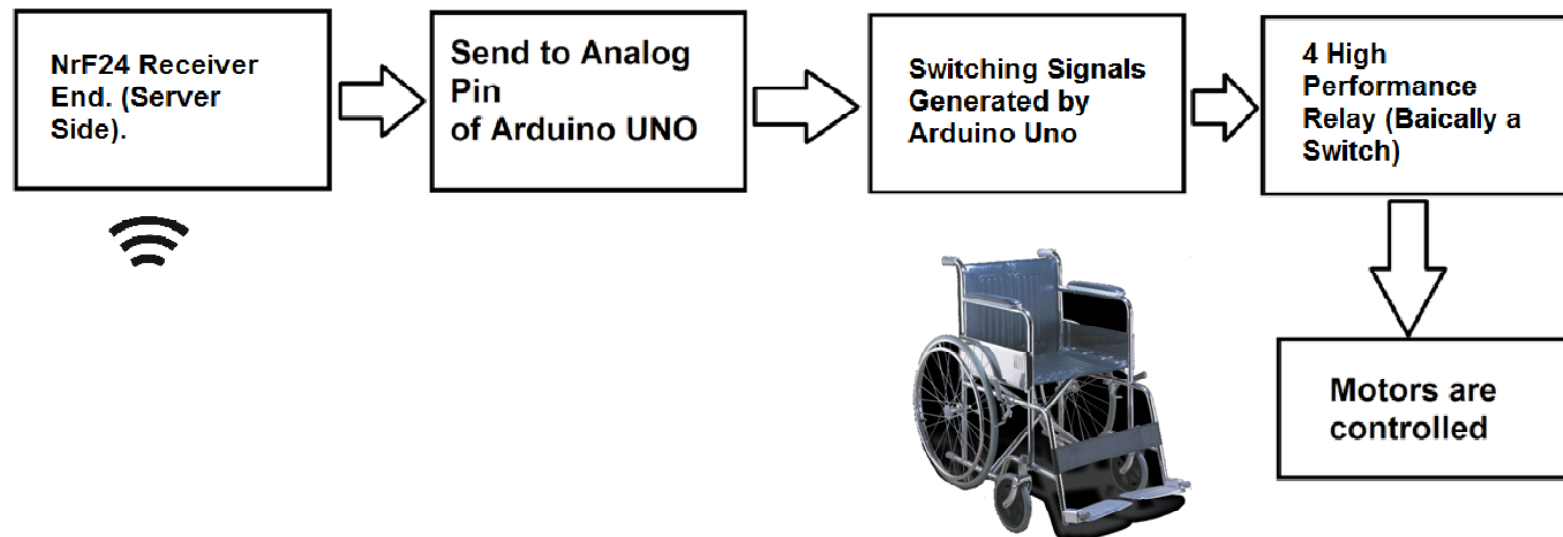
- Can be used by any person not only the disabled patients.
- To give ability to perform multiple work at the same time.
- And make them feel they are independent
- To reduce the affords of the physically challenged person.
- To make it affordable to every customer or patient.

Demonstration

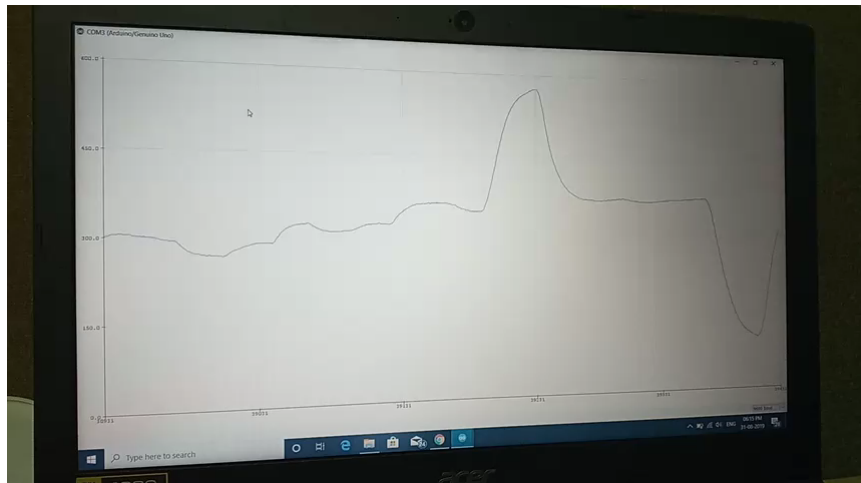
How does it work ?



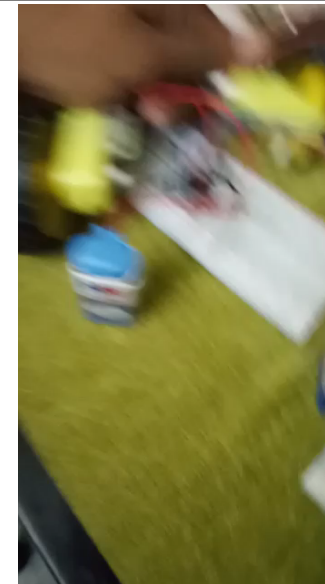
How does it work ?



Results

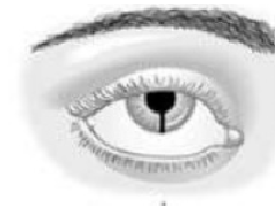
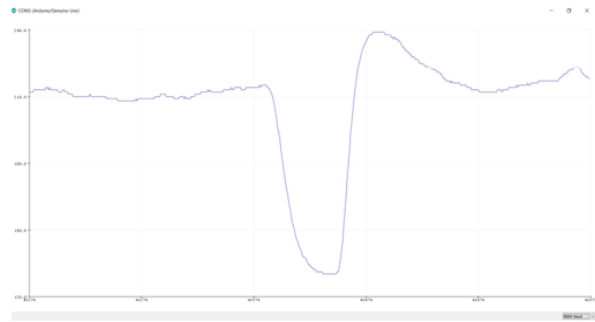


Signal Visualisation

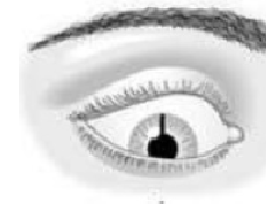
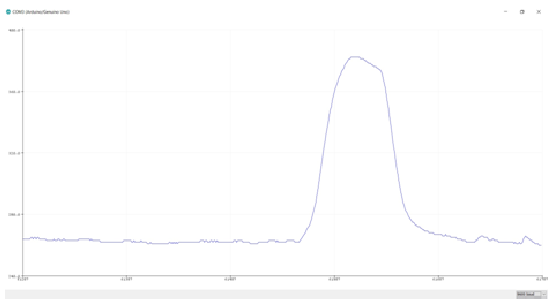


Implementation

How does it work ?

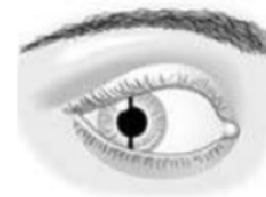
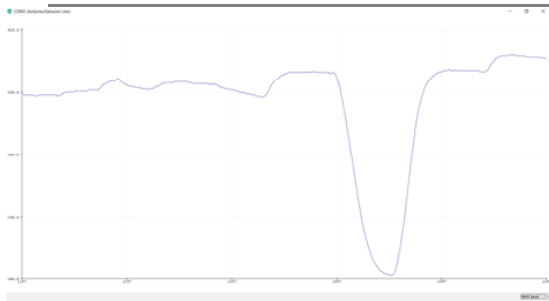


UP
Movement

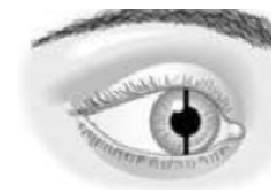
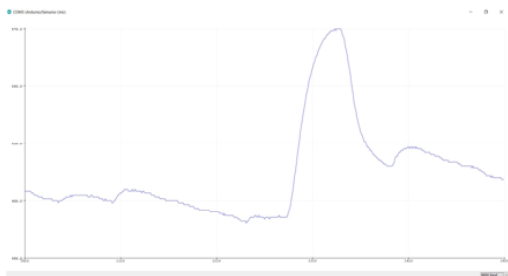


Down
Movement

How does it work ?



Left Movement



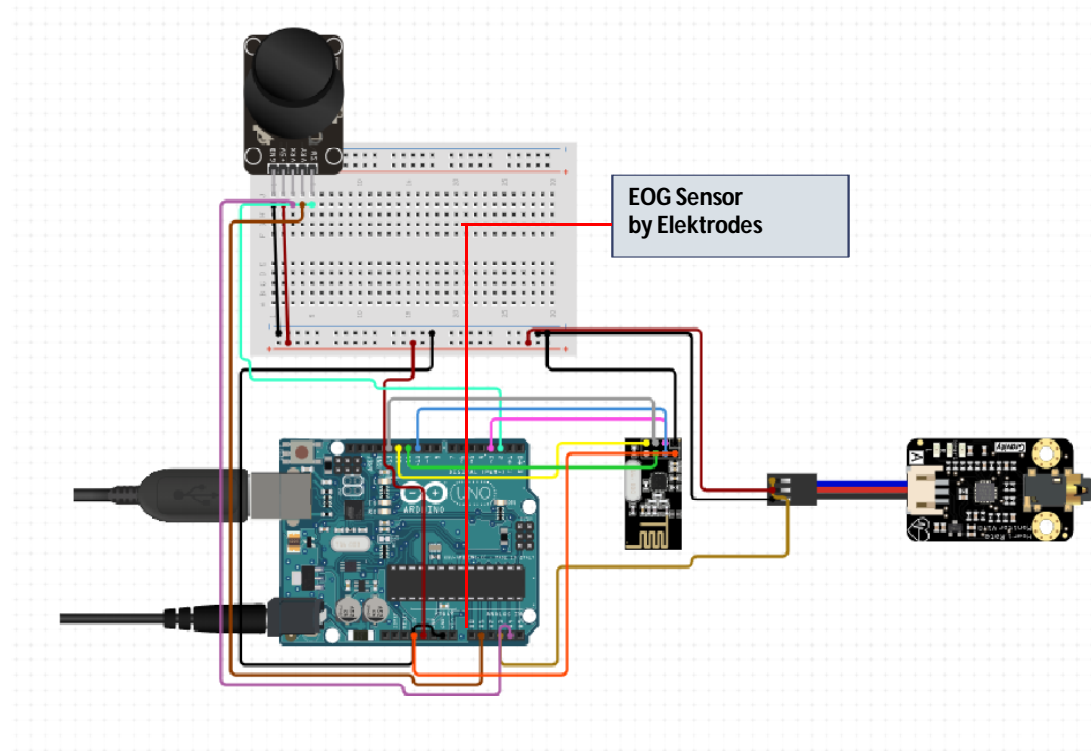
Right Movement

Elektro-Wheelchair

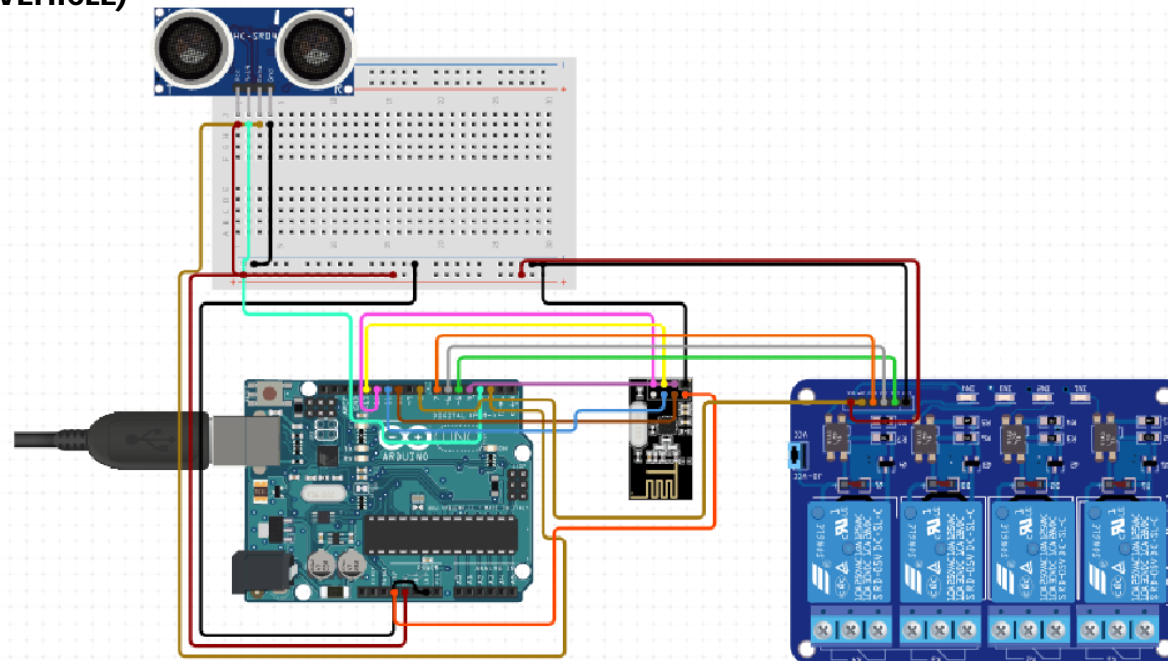


- Steel framed Wheelchair (17Kg)
- Using two 24V 250W motors
- High Quality Relay Switches (28VDC 30A)
- Currently using 14Ah Battery
- This can help the wheelchair to run for 4.5 hours.
- Implementing Obstacle Detection
- Max. Load it can carry is 90Kg

**CLIENT SIDE
(PLACED AT THE USER SIDE)**



**SERVER SIDE
(PLACED ABOVE THE
MOVEABLE VEHICLE)**



Risk, Issues and Mitigation plan

There are mainly three issues of this project:

- Signals generated by partially blind patients.
- Distorted signals generated for corneal disorders.
- Wired problem

Mitigation plan:

- Tuning filters and amplifiers
- Using NrF24 RF Module to make it wireless and remove complexities

What is the USP?

- Target customers are the paralysed patients, NGO, OldAge Homes, Hospitals etc
- Our product costs fraction of the existing models tag price. It costs **Rs _____ (Incl Motorised Wheelchair)**
- the best quality assurance that any company can give.
- We can sell the parts separately. Like only the acquisition system.
- Can be available and easily customisable by any individuals like Lego Parts
- Providing after sales service.
- Customisable as per users or patients requirement
- 24 hrs health monitoring assistance

Guess !!!



Guess !!!

₹ 17,692 only

(Incl. Wheelchair and Extra Modules)

Future Implementation

- EOG enabled Spectacles
- IoT based Heart Rate Monitor
- Patients Fall Detection

Thanks

**Narula Institute of Technology, Agarpara,
BCC&i
and
Health Tech 3.0**

Mentor:
Dr. Anilesh Dey

Elektrodes Members:
Soumashis Das
Indranil Jana
Soumendu Biswas
Tanmoy Munshi

Thank You



CONTACT DETAILS



E-Mail ID:

teamelektrodes@gmail.com

Contact: **+91 76878 39372**

+91 76870 36113