PROJECT REPORT

ON

COMPUTER ASSIST FOR PARALYZED USING EEG

SUBMITTED TO THE

UNIVERSITY OF MUMBAI

FOR THE DEGREE OF

BACHELOR OF ENGINEERING

IN

COMPUTER ENGINEERING 2016-2017

Submitted by

Akash Gund (Roll No.24)

Bronson Mendonca (Roll No.45)

Siddhant Reddy (Roll No.58)

Supervisors:

Mrs. Kalpita Wagaskar

Mrs. Sejal Chopra

DEPARTMENT OF COMPUTER ENGINEERING

DON BOSCO INSTITUTE OF TECHNOLOGY

(ENGINEERING COLLEGE)

PREMIER AUTOMOBILES ROAD, KURLA (W) – 400070

COMPUTER ASSIST FOR PARALYZED USING EEG

Submitted in partial fulfilment of the requirement for the Degree of

BACHELOR OF ENGINEERING IN COMPUTER ENGINEERING

by

Akash Gund (Roll No.24)

Bronson Mendonca (Roll No.45)

Siddhant Reddy (Roll No.58)

Supervisors:

Mrs. Kalpita Wagaskar

Mrs. Sejal Chopra

DEPARTMENT OF COMPUTER ENGINEERING

DON BOSCO INSTITUTE OF TECHNOLOGY

(ENGINEERING COLLEGE) PREMIER AUTOMOBILES ROAD,

KURLA (W) – 400070

2016-2017

CERTIFICATE

This is to certify that the project report entitled **"Computer Assist for Paralyzed using EEG"** is a bonafide work of

1.	**Akash Gund**	**B. E. – (Roll No. 25)**
2.	**Bronson Mendonca**	**B. E. – (Roll No. 45)**
3.	**Siddhant Reddy**	**B. E. – (Roll No. 58)**

submitted to the University of Mumbai in partial fulfillment of the requirement for the award of the Degree of Bachelor of Engineering in the Computer Engineering

Kalpita Wagaskar
Supervisor

Sejal Chopra
Co-Supervisor

Ms. Nilakshi Joshi
Head of Department

Dr. P. Nambiar
Principal

Project Report Approval for B. E.

This project report entitled **"Computer Assist for Paralyzed using EEG"** by **Akash Gund, Bronson Mendonca and Siddhant Reddy** is approved for the degree of Computer Engineering course of Bachelor of Engineering.

Examiners

1.----------

2.----------

Date:

Place:

DECLARATION

I declare that this written submission represents my ideas in my own words and where others' ideas or words have been included, I have adequately cited and referenced the original sources. I also declare that I have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/data/fact/source in my submission. I understand that any violation of the above will be cause for disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed.

1. Akash Gund (Roll No. 25)

---------- ----------

(Name of student, Roll no.) (Signature)

2. Bronson Mendonca (Roll No. 45)

---------- ----------

(Name of student, Roll no.) (Signature)

3. Siddhant Reddy (Roll No. 58)

---------- ----------

(Name of student, Roll no.) (Signature)

Date:

ABSTRACT

Computers have made life easier for the general population, however a technology is not fulfilling its purpose unless it is accessible by everyone. Namely the paralytics (hemiplegia, quadriplegia) who have a hard time with technology because it is designed for an average person. This is why we decided to make a hardware interface for desktop computers which would allow these patients to use a computer with ease. Various combination of non-invasive Brain-Computer interface have been promising in helping such patients by giving interactive solutions. A combination of 3 electrode EEG and an Arduino Leonardo, on basis of P300 waves which play crucial role in decision making process in brain will be used to make this hardware interface. This hardware interface aims to mimic a mouse and keyboard in operation and also its speed of use as much as possible for the concerned patient.

TABLE OF CONTENTS

LIST OF FIGURES

ABBREVIATIONS

EEG	ElectroEncephaloGram
AI	Artificial Intelligence
GUI	Graphical User Interface
IP	Image Processing