

EEG MIND CONTROLLED PROSTHETIC HAND

PROJECT REPORT (SIP ID – 2122S4441)

Submitted by

**VEDA PRAKASH MOHANARANGAN
MATHUMITHA I.
SRUTHI R.**

Submitted to

**CENTRE FOR SPONSORED RESEARCH AND
CONSULTANCY
ANNA UNIVERSITY, CHENNAI - 25.**




**DEPARTMENT OF ELECTRONICS AND
COMMUNICATION ENGINEERING
ANNA UNIVERSITY REGIONAL
CAMPUS TIRUNELVELI**

DECEMBER 2022


DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING
ANNA UNIVERSITY REGIONAL CAMPUS TIRUNELVELI

BONAFIDE CERTIFICATE


Certified that this Project Report titled "EEG MIND CONTROLLED PROSTHETIC HAND" is the submitted by **Mr. Veda Prakash, Mohanarangan , Ms. Mathumitha I. , Ms.Sruthi R.** who carried out the work under our supervision. Certified further that to the best of my knowledge the work reported herein all the guidelines prescribed by the University was followed during and after implementation of the project.



Dr.Suja Priyadharsini, M.E.,Ph.D.
Assistant Professor,
Head Of The Department,
Department of Electronics and
Communication Engineering,
Anna University Regional Campus Tirunelveli,
Tirunelveli – 627007



Dr.R.Gokulakrishnan M.E.,Ph.D.
Assistant Professor,
Department of Electronics and
Communication Engineering,
Anna University Regional Campus Tirunelveli,
Tirunelveli – 627007



Dr.J.Jesu Vedha Nayahi M.E.,Ph.D.
Assistant Professor(SRGR),
Department of Computer Science and
Engineering,
Anna University Regional Campus Tirunelveli,
Tirunelveli – 627007

ACKNOWLEDGEMENT

I would like to express my special gratitude and thanks to **"CSRC - CENTRE FOR SPONSORED RESEARCH AND CONSULTANCY"** for giving us such a wonderful opportunity.

A special mention to our dean **"Dr.N.Shenbaga Vinayaga Moorthi"** for supporting us throughout this journey.

Our thanks and appreciations also go to our HOD **"Dr.Suja Priyadharsini"** Dept. Of Electronics and Communication Engineering in developing the project.

I am highly indebted to **"Dr.K.Gokulakrishnan"** and **"Dr.J.Jesu Vedha Nayahi"** for their guidance and constant supervision as well as for providing necessary information regarding the project & also for their support in completing the project. I would like to express my gratitude towards member of Anna University Regional Campus Tirunelveli for their kind co-operation and encouragement which help me in completion of this project.



VEDA PRAKASH MOHANARANGAN



MADHUMITHA I.



SRUTHI R.

	INDEX	PAGE NO.
	CHAPTER 1	1
1	INTRODUCTION	2
	1.1 GENERAL	2
	1.2 OBJECTIVE	2
	1.3 PROJECT SCOPE	3
	1.4 NEED FOR STUDY	3
	1.5 ORGANIZATION OF REPORT	4
	CHAPTER 2	5
2	LITRATURE REVIEW	6
	CHAPTER 3	9
3	DESGIN METHODOLOGY	10
	3.1 BASIC IDEA	10
	3.2 HARDWARE SPECIFICATIONS	11
	3.2.1 ARDUINO UNO	11
	3.2.2 RASPBERRY PI 4	11
	3.2.3 SERVO MOTORS	12
	3.3 ASSEMBLY OF PROSTHETIC HAND	13
	3.4 PHASE I	13
	3.4.1 PREREQUISITE	14
	3.4.2 CODING	15
	3.4.3 ALGORITHM FOR SELECTING FINGER MOVEMENT USING BRAIN WAVES	17
	3.4.4 CONNECTION	19
	3.4.5 RESULT AND CONCLUSION	19

TABLE OF FIGURES

FIGURE	NAME	PAGE NO.
1.1	HAND GESTURES	2
3.1	ARDUNIO UNO	11
3.2	RASPBERRY PI	11
3.3	ASSEMBLY OF PROSTHETIC HAND	13
3.4	ALGORITHM	17
3.5	MOVEMENT DETECTION	18
3.6	GIGA dB	19
3.7	ORCid	20
3.8	DATASETS	21
3.9	CLASSIFICATION TRAINER(A)	22
3.10	CLASSIFICATION TRAINER(B)	22
3.11	MINDFLEX	24
3.12	BLOCK DIAGRAM	25
3.13	CIRCUIT DIAGRAM	25
3.14	CICUIT DESGIN	28

SOFTWARES USED

MATLAB

AUTOCAD

ARDUINO IDE

RASPBERRY PI OS

PYTHON

FRITZING

BLENDER

MESHMIXER

TINKERCAD