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**PES UNIVERSITY**

**(Established under Karnataka Act No. 16 of 2013)**

**100 Feet Ring Road, Bengaluru, Karnataka, India – 560 085**

***Project report on***

**‘ROBOTIC ARM BCI’**

***Submitted by***

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**Aug 2020 – May 2021**

**under the guidance of**

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**CERTIFICATE**

*This is to certify that the Report entitled*

**‘ROBOTIC ARM BCI’**

*is a bonafide work carried out by*

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In partial fulfillment for the completion of 8th Semester course work in the Program of Study B. Tech. in Electronics and Communication Engineering, under rules and regulations of PES University, Bengaluru during the period Aug 2020 – May 2021. It is certified that all corrections/suggestions indicated for internal assessment have been incorporated in the report. The dissertation has been approved as it satisfies the 8th semester academic requirements in respect of project work.

*Signature with date & Seal Signature with date & Seal Signature with date & Seal*

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*Name and signature of the examiners:*

**DECLARATION**

We, **Student 1**, **Student 2** and **Student 3**, hereby declare that the project report entitled, ‘***Project Title’****,* is an original work done by us under the guidance of **Dr./Prof. XXXX**, Designation, Dept. of ECE and is being submitted in partial fulfillment of the requirements for completion of 8th Semester course work in the Program of Study B. Tech. in Electronics and Communication Engineering.

**PLACE:**

**DATE:**

**NAME AND SIGNATURES OF THE CANDIDATES**

**ABSTRACT**

Latest brain computer interface (BCI) technology that can interpret brain EEG signals has helped in

successful robot regulation, resulting in the rise of Brain Robot Interface (BRI) (BRI). This project

focuses on accurately classifying the user's Action/Cognitive thoughts, where successful EEG signal

decoding can provide a higher degree of freedom regulation in BRI applications. The user's scalp EEG

signals are captured using a non-invasive electrode and then prepossessed to generate noise-free EEG

signals. Techniques such as Time-Frequency Analysis are used to derive features from the EEG signal.

To learn the EEG signal features for successful output classification, an Artificial Neural Network

(ANN) machine learning algorithm is used in this work as a classifier. This paper examines the

system's accuracy using a proposed combination of Time-Frequency analysis and the ANN algorithm

for EEG feature extraction and classifier, respectively.

**ACKNOWLEDGEMENT**

**With immense pleasure, presenting our project ‘BCI Robotic Arm’ report as a part of our curriculum in ‘B.Tech in Electronics and Communication Engineering’. We wish to all people who gave us endless support throughout.**

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**INTRODUCTION**