



# **MIND SPELLER: BCI HYBRID SPELLER USING EEG**

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For degree of  
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**By**

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## **Abstract**

Computer aided systems are key communication channels between disabled and healthy person. Brain computer interface enable user to communicate through brain signals. Locked-in syndrome is a state in which a person unable to talk or move. In this condition person not communicate through common way, although the person is still aware of the environment, and also move their eyes. For allow a person which is in Locked-in syndrome condition to communicate without any help from others, brain computer interface may be a feasible option. Brain computer interface is a system that acquires electroencephalographic (EEG) signals; EEG signals associated to neuronal activity that comes from the brain of the subject.

EEG signal converts into commands, which translates and processes those commands. Translated commands control an external device or write some message for communication purpose. Purpose of the presented research is to allow a person to write alphabet using brain signals. The detection of alphabets is based on different type responses received from EEG device. Proposed approach use non-invasive method. Non Invasive brain computer interface recorded brain activity from outer boundaries of body. Electrodes were placed in outer scalp. The proposed method predicts characters for writing text and conveys user messages to other persons. Then band pass filters had been applied for noise removal and eliminate non targeted signal and perform feature extraction. For classification, Support vector machine (SVM) has been used.

Results show that subject concentration increases the accuracy of prediction of characters and numbers of training increases the accuracy of prediction of characters. Accuracy of prediction increased when the number of electrodes was increased.

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