

Brain-Computer Interface based Control Techniques and their Applications: A Review

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Abstract

A mind machine interface often termed as (BCI) is a computer-based system which facilitates the acutely disabled persons incapable of communicating through the normal pathways to convey and interact with their surroundings by means of brain waves. The existing BCIs assist in deciding the user's attention arising due to a mixture of diverse electrophysiological signals inclusive of visual evoked potentials, event related P300 signals, and μ or β brain rhythms acquired from the electrodes placed on human scalp. Various research attempts have been made to control the home appliances using the BCI techniques, such as through Steady state visual evoked potentials, P300 signals, and Motor Imagery. The reliable control of smart home using selection based P300 potentials has been done by presenting an array of images exhibiting the various devices that can be controlled. When the subject fixed his gaze on one of the flickering LEDs, the SSVEP is analyzed in the occipital lobe and gets converted to the corresponding control commands which can be transferred to a computer in order to control home appliances via remote wireless connection. The purpose behind the analysis of motor imagery (MI) activity lies in the acquisition of brain signals in the form of raw EEG data, which are further denoised and processed by feature extraction, classification for recognition of specific patterns and these are converted into commands for controlling home appliances based on direction of hand, feet movement, imagination by the user. This review paper provides an insight regarding the research work on commonly used BCI control signals i.e. P300, Motor Imagery and SSVEP and their applications.

Keywords: Brain Computer Interface, P300, Steady-State Visual Evoked Potential, Motor Imagery.

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English for Business Purposes (EBP) in the Age of Globalisation

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Abstract

To get a job in the business sector with decent salary requires effective communication skills in English. In the age of globalisation the role of communication skills in English is increasing day by day. English has become the medium of communication between various cultures and civilisations. There is a misconception among the teachers, students, employers and employees that English used for Business Purposes (EBP) is different from the Standard English. English used for business purposes is not any special language but the use of English in peculiar business environment. Thus, English used for business is not a variety of English, rather it is purpose specific; we may justly call it English for Business Purposes (EBP). EBP is the process of transmitting information and facts to defined audience/readers for a specific purpose. Basically, its aim is to communicate accurate information, facts and details in a manner which is clear, simple, lively, courteous and considerate.

Key words: EBP, communication, variety, information.

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Study of Iron Slag Generation, Its Properties & Utilization in Construction Practices- A Review

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Abstract:

Steel and Iron industries are always in a boom and the generation of slag is increasing from the last 2 decades. It has become a major issue to dispose of the slag or utilization in a smart way. With a huge brain storming, the researchers have successfully explored the various alternatives to utilize the slag so that the developing countries can claim for the sustainable development. This paper offers a review on the various uses of Iron slag in concrete. The study on the influence of iron slag on the properties of concrete is still limited and needs more attention. Therefore, the review regarding the effect of Iron slag on the strength and microstructure of normal concrete as well as self-compacting concrete has been discussed.

Key Words: *Iron Slag, Self Compacting Concrete, Compressive Strength, Aggregates.*

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Configuration of Analog to Digital Converter as Data Acquisition System for C2000 Delfino Microcontroller

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Abstract

In this paper, on-chip Analog to Digital Converter (ADC) was configured to sample a single input channel using the ADC interrupt service routine (ISR) of F28379D Delfino Microcontroller of C2000 Family. Code Composer Studio (CCS) was used to view the sampled data in memory and the data was also displayed using graphing feature of the software. Real time emulation mode of CCS was used to update and view the result in real time. One of the internal DACs was also configured to generate a fixed frequency sine wave with programmable offset and the signal was measured using the same procedure. PWM module was also configured to generate a PWM waveform with programmable frequency and duty cycle. The main objective of this work was to become familiar with the operation of on-chip ADC which can be used for data acquisition system.

Keywords: Analog to Digital Converter (ADC), Data acquisition system, Delfino Microcontroller, programmable offset.

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Effect of Training on Self Esteem, Interpersonal Skills and Burnout in Assistant Section Officers: A pre-post design study

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Abstract

The present work was an attempt to study the effect of training on three traits of personality by means of a pre and post training design. The sample consisted of 58 newly recruited assistant section officers of Central Secretariat Service, GOI New Delhi, out of which 12 were females and 46 were males. By and large, their age ranged between 25-30 years. They were administered three tests, namely and Maslach Burnout Inventory (MBI); Self esteem scale and Interpersonal communication inventory. The training lasted for nearly 3 months. They were familiarized with administrative functions and rules. Apart from this personality development was also done. After training they were again administered the three afore said tests. The results were calculated in terms of means, SD,

& t-ratio of correlated means. The t-ratio's for all the three areas showed very significant improvement as all the t-ratio's were significant beyond .01 level. This meant that in a job soft skill training should be made integral part of induction training.

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Developing Sugarcane Bagasse Ash, Fly Ash and Rice Husk Ash on m25 grade of concrete

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Abstract

In this research study, the comparison of strength properties of concrete has been assessed by partially replacing cement with Sugarcane Bagasse ash, Fly ash and Rise husk ash. These ingredients are environmental pollutants, and their utilization in concrete not only save the material but can also solve the problem of their disposal and environmental pollution. Using these alternate waste materials as admixtures in concrete; cubes, cylinders and beams were cast and tested for compressive, split tensile and flexural strengths. Initial trials were conducted by partially replacing cement with Sugarcane bagasse ash starting from 2% to 12% with the gradual increase of 2% for each trial and observed maximum strength gain at 10% replacement of cement. Keeping this 10% of SCBA as constant, cement was partially replaced with variable content of FA and RHA. The proportion of FA and RHA in cement replacement was 5% to 15% and 2% to 4 %, with gradual increase of 5% and 1%. About 25% increase in the compressive, split tensile and flexural strength was found when the cement content is decreased to 78% and remaining 22% is replaced with 10 % SCBA, 10% FA and 2 % RHA.

Keywords: *OPC Cement, Compressive Strength, Flexural Strength, Split Tensile Strength, Sugarcane Bagasse Ash (SCBA), Fly Ash (FA), and Rice Husk Ash(RHA).*

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An Empirical Study of Dimensions of Emotional Labour in Banking Sector

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Abstract

The use of emotional labour has increased due to change in the economy. In service industry, being friendly or nice to people is a value added part of the services provided by the employees. The present paper made an attempt to explore the dimensions of emotional labour relying on primary data collected through a structured questionnaire designed to measure emotional labour. The purpose of this study was to invoke emotional labour in banking industry. The results showed that there was a great degree of association between the dimensions of emotional labour as surface acting and deep acting in banking industry. Both surface acting and deep acting are performed to manage emotions during interactions by the employees while providing their services to the customers.

Keyword: Emotional Labour, Deep Acting, Surface Acting Dimensions.

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