


Chapter 3


Incorporation of Brain–Computer Interface–Controlled Smartphone Data in Electronic Systems AI

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ABSTRACT

the merging of the Brain-Computer Interface (BCI) technology with portable electronic devices to improve electronic systems through the application of artificial intelligence (AI). The feasibility of using BCI-controlled smartphones as interfaces

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for artificial intelligence activities is now being researched as part of this investigation. Additionally, the advantages of using such interfaces are being considered. The objective of this study is to investigate the technological advancements that are necessary to make it possible for error-free business transactions to take place between BCI bias and cell phones. The findings of this evaluation are aimed to make the experience of stoners easier to understand and to boost the availability of information about them in electronic systems. Important components include the construction of dependable communication protocols, the incorporation of ergonomic design considerations, and the implementation of implicit operations across a range of disciplines, such as healthcare, communication, and assistive technologies.

INTRODUCTION

In recent years, the rapid development of Brain-Computer Interface (BCI) technology (Allison, B. Z., & Neuper, C., 2010) has made available new possibilities for enhancing the connections between humans and machines in a variety of domains. Because this technology makes it possible for the human brain to have a direct touch with the outside world, it paves the way for operations in the sectors of healthcare (Abdulkarim, Y.I. et al., 2024), communication, and assistive technologies that were not previously studied for their potential (Brouwer, A. M., & van Erp, J. B. F., 2010). The ubiquitous nature of smart phones and the ever-evolving capabilities of these devices (Du John, H. V. et al., 2024) have, coincidentally, brought about a shift in the manner in which humans interact with electronic communication systems (Pandey, D. et al., 2024). A wide range of functionalities, including the incorporation of artificial intelligence (AI) (Pandey, B. K. et al., 2024a), have been implemented on smart phones, which have functioned as platforms for these functionalities. When it comes to the convergence of technology, the inclusion of brain-computer interface (BCI) operated cell phones into artificial intelligence (AI) (Boopathi, S. et al., 2023) systems represents a cutting-edge frontier. Using the power of brain-computer interface (BCI) technology, which interprets cerebral signals (Sahani, S. K. et al., 2024) to regulate external bias, and links it with the computational capabilities (Kumar, B. et al., 2024) of smartphones, the experimenters hope to create faultless interfaces that go beyond the conventional input methods (Pandey, B. K. et al., 2024d). This will be accomplished by utilizing the power of BCI technology. The incorporation of this technology may revolutionize how we interact with technology daily. This will be accomplished by enabling intuitive commerce through the utilization of technologies that are powered by artificial neural network (Pandey, B. K., & Pand-

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