EmoGame: Unraveling Emotional Correlations in Teen Video Gamers for Health Monitoring Insights - Biomedical Analysis of the Emotional Impact of Fortnite and Minecraft

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ABSTRACT

The EmoGame project explores the emotional correlations of teenagers engaged in video gaming, with a specific focus on the popular titles Fortnite and Minecraft. The purpose of this study is to unravel the emotional impact of these games on adolescents and provide valuable insights for health monitoring. By employing EEG signal extraction techniques, we investigate the emotional dynamics and discern whether these gaming experiences predominantly elicit positive or negative emotional states among teens. The applied methodology involved equipping participants with NeuroCap devices, which facilitated real-time monitoring of their brainwave activity during gameplay sessions. The extracted EEG signals were then analyzed using advanced signal processing techniques and machine learning algorithms to identify and quantify emotional responses. A dataset of 15 participants was collected, comprising of emotional states experienced by the participants while playing Fortnite and Minecraft. The findings of this study shed light on the emotional impact of video games on teenagers. Our analysis revealed distinct patterns of emotional correlations, with both positive and negative emotional states being elicited during gameplay. This suggests that these games have differing effects on emotional well-being among teens. The contributions of this study extend beyond the realm of video gaming. By incorporating health monitoring perspectives, we demonstrate the potential of EEG-based emotional analysis as a tool for assessing the mental well-being of young gamers. The integration of wearable devices and advanced signal processing techniques opens up new avenues for enhancing health monitoring practices in the gaming domain. Moreover, these findings can inform game developers, parents, and healthcare professionals about the emotional impact of specific game titles on teenagers. By contributing to the field of health monitoring, this study paves the way for developing targeted interventions to promote positive emotional well-being

in young gamers and foster responsible game design practices.