IoT Based Smart Pillow for Improved SleepExperience

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Abstract

Maintaining appropriate health by avoiding illnesses brought on by stress, heart disease, stroke, insomnia, and hormonal imbalance is made possible by managing the quality of sleep necessary for brain and memory-related tasks. In order to reduce these phenomena, we concentrated on recognizing them and developing strategies to do so. As a result, we decided to use smart pillows and bands that are Internet of Things (IoT) based. To connect the touch sensor and relay module for improving sleep quality with the help of an automatic alarm system and light treatment system, an ESP 32 (microcontroller) was built into the pillow. The band will also have a second ESP 32 that can be connected to an oximeter, gyro, and accelerometer to improve the sleepwalk alert and health monitoring systems accuracy. The mobile application will also be created so that the patient and the doctor may review the patients sleeping patterns, and the CNN-based deep learning architecture was used to develop the emotion recognition function that uses music to improve sleep quality. For a better sleep experience, we will be referred to the smart band and pillow as MAGICAL PILLOW and MAGICAL BAND as the ultimate product.

Keywords

IoT, CNN, Deep Learning, Micro-Controller, Sleep Quality, Light Therapy