

SYSTEM FOR UTILIZING BRAIN STATE TO CONTROL SPEED OF ROLLER SKATE

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Abstract

The system for automatic driving of driverless vehicles, comprising; a wearable device, consisting a first electrode receives a brainwave signal for analysing brain signal, a second electrode connected to the first electrode that removes noise from the signal, a third electrode that act as a ground, an amplifier unit connected to the electrodes that amplifies the strength of the signal, a transmitter connected to the amplifier unit that delivers the signal to skate to control the speed of the motors, and a skate, consisting a receiver that receives the signal.

Keywords: brain state, skate board, frequency, amplitude, transmitter.

1. Introduction

Human intellect includes millions of neurons which are interlinked to each other. The arrangement of interaction between these neurons are represented as thoughts and sentimental states. According to the human thoughts, this arrangement is changing spontaneously which in turn produce different electrical waves. These electrical waves are used to regulate the speed of the vehicle, such as a skate board. Basically, the skate board comprises a board along with support elements attached and revolving on the underside at the front rear ends, the board had a ball which also rotates along a suspension axle connected to the board and the ball. The suspension axle and the supporting elements are sized and located so that when a board is placed horizontally, only the ball is in direct contact with the ground. Sometimes when the person loose his focus and concentration, he/she fall of the skate board and land on an outstretched arm and suffer from ankle and wrist fractures. In order to avoid aforementioned limitations there is need to develop a skate board that can be operated by a brainwave signal. Furthermore it minimizes the chances of accidents occur due to falling of person on ground surface.

2. Experiment

The system for managing the speed of a roller skate by receiving brain wave signal with the help of electrodes present inside a wearable device, the robustness of the received

signal is enhanced and later the signal is transferred from the wearable device to the skate board through radio frequency [1]. The system is designed to manage the speed of the roller skate with the brainwave signal. It works according to the focus and attention of the user, if the focus and attention of the user is low then the speed of the roller skate is also low, so as to minimize the chances of the road accidents [2]. The wearable device having helmet like configuration detects the brain signal of the user. It includes the three electrodes, such as the first electrode, second electrode, and third electrode [1]. The first electrode is installed in the device that receives the brainwave signal of the user. It is placed near the forehead [3][4]. The second electrode placed near earlobe is connected to the first electrode that removes unwanted noise from the obtained brainwave signal. The third electrode placed near neck of the user that act as a ground [5]. The amplifier unit is attached to the electrodes that enhances the strength of the brainwave signal. In the amplifier unit, the signal obtained from the first and second electrode are buffered and later the signal obtained from the second electrode is subtracted from the signal obtained from the first electrode, wherein the V^+ is the signal obtained from the first electrode, and V^- is the signal obtained from the second electrode [6]. The transmitter is connected to the amplifier unit that transfers the amplified signal from the wearable device to the roller skate to control the speed of the motors [7]. The roller skate is connected to the wearable device through radio frequency. The roller skate includes the receiver which is installed inside the skate for receiving the brainwave signal from the transmitter of the wearable device [8].

3. Result and Conclusion

The system is fabricated to drive the roller skate with the brain wave signal. The system includes the two major components, such as the wearable device and roller skate, wherein the wearable device includes the three electrodes that receives the brainwave signal from the electrode, removes the unwanted noise from the signal and delivers the same to the roller skate to rotate the vehicle from one location to another location.

Reference

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