BRV

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**1.0 INTRODUCTION**

Our main goal is to be able to recognize mental state by analyzing eye blink dynamics. It will have wide range of applications.

For that we propose how to extract BRV from EEG signal.

Who was using BRV and for what

* BRV could be useful measurements for researchers to infer the inner experience of audience members as blinks’ dynamic changes when we go to “inner world”) [16] by storytelling[17] or presenting movie[18] (experience of being “carried away” is know as “transportation into narrative world”[20]).
* Eyeblink entrainment can reflects smooth communication between interactants
* Spontaneous blink rate (BR) has been studied not only in neurological diseases, such as Parkinson’s disease 1,2 and Tourette syndrome, 3 but also in psychiatric disorders, such as schizophrenia 4–7 and attention deficit hyperactivity disorder, 8 because it is regarded as a non-invasive peripheral marker of central dopamine activity. 9
* Eye blink monitoring in mobile devices for computer Vision Syndrome prevention [21] [22]
* EEG based BCI combined with trigger switch using eye blink [23]
* Sometimes we want to get rid of ocular artifacts from EEG signal, as the eye blink is artifact and leads to interpretation problems[24].
* can be used to assess mental states like drowsiness[25] [26] . According to the World Health Organization (WHO) the ninth cause of human death globally are car accidents (Preventing Road Traffic Injury: A Public Health Perspective For Europe, 2009). As shown in [27] Heart rate increases with workload and decreases in monotonous and drowsy conditions. BR is inversely correlated with the increase of workload.

**2.0 EXPERIMENTAL SETUP**

**2.1 Data acquisition**

For the purpose of collecting data we developed special questionnaire software, and software for detecting eye blinks within EEG signals.

The video stream was captured with a Logitech HD Pro Webcam C920 . Video stream was stored on a disk drive to be processed in the future. Simultaneously EEG signals were recorded. For the recording of EEG signals we employed Mitsar-EEG 201 amplifier and accompanying WinEEG software. The electrodes were placed according to the international “10-20 system”[15]. Electro-gel has been injected into electrodes hollow in order to decrease the electrode-skin resistance. Currently, the EEG signals were recorded with the purpose of eye blink detection. In the future work we are planning to analyze EEG to detect various types of brain activity.

The experimental setup is shown in the figure 1.

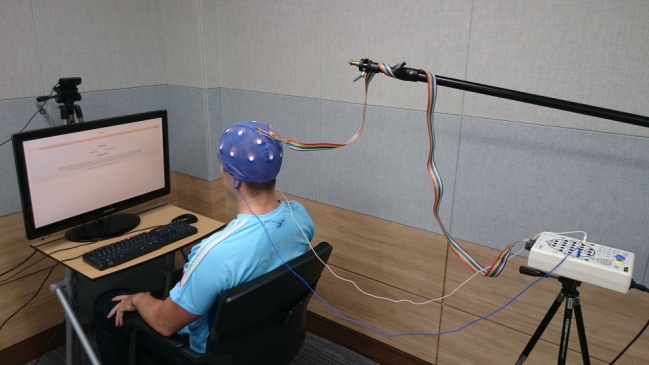


Figure 1 Experimental setup

**2.2 Testing procedure**

**2.3 Eye blinking detection procedure**

**3.0 METHODS**

**4.0 CONCLUSIONS**

**Acknowledgments**

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