CLAIMS:

1. A method for pre-processing of an electroencephalography (EEG) signal of a user for cognitive load measurement, said method comprising processor implemented steps of:

a. capturing the electroencephalography signal of the user using a low-resolution wireless electroencephalography signal recording device, wherein the electroencephalography signal is generated corresponding to a stimulus;
b. detecting a plurality of system artifacts in the captured electroencephalography signal using an artifact detection module;
c. removing a noisy window from said electroencephalography signal using a noisy window removal module;
d. detecting an eye blink region in said electroencephalography signal using an eye blink region detection module, wherein the eye blink regions are detected using a clustering based method, said clustering based method comprising the steps of:

sub-dividing the EEG signal into windows of duration one second;

calculating the delta band power for each window as features;

applying a standard k-means algorithm on the features;

varying number of clusters and examining the value of k that gives minimum Xie-Beni index, wherein the Xie-Beni index indicates finest formation of clusters; and

extracting EEG data from a cluster corresponding to maximum size conditioned to lowest delta band power and marking data corresponding to remaining clusters as the eye blink regions;

e. filtering out said detected eye blink region from the electroencephalography signal using an eye blink region filtering module; and
f. utilizing filtered electroencephalography signal to measure discrimination of cognitive load among selected channels of the user, wherein the cognitive load for each channel is obtained using a product of change in mean frequencies and corresponding power for both alpha and theta band, said change measured between the filtered electroencephalography signal for Stroop stimulus and initial baseline data, and wherein the discrimination of cognitive load is

obtained as a standard deviation of the cognitive load among the selected channels.

2. The method of claim 1, wherein the stimulus is a stroop test.

3. The method of claim 1, wherein the plurality of artifacts includes artifacts pertaining to said electroencephalography signal recording device.

4. The method of claim 3, wherein the system artifacts pertaining to said electroencephalography signal recording device is selected from a group comprising of power supply interference, an impedance fluctuation, a spurious noise and an electrical noise and a combination thereof.

5. The method of claim 1, wherein the noisy window is detected using at least one of an application programming interface (API) based software development kit (SDK), a standard deviation and a signal skewness measurement.

6. The method of claim 5, further comprising indicating a noise level of the noisy window of said electroencephalography signal while using the API based SDK, wherein the noise level of the noisy window is selected from a group comprising of no signal, very poor signal, poor signal, fair signal and good signal.

7. The method of claim 5, further comprising subdividing said electroencephalography signal into non overlapping windows for calculating the standard deviation of said electroencephalography signal.

8. The method of claim 5, further comprising subdividing said electroencephalography signal into non overlapping windows for measuring signal skewness measurement of said electroencephalography signal.

9. The method of claim 1, wherein the eye blink regions are detected using at least one of a software development kit (SDK), a template based cross-correlation, a template based auto-correlation and the clustering based method.

10. The method of claim 1, wherein the eye blink region is filtered out from the electroencephalography signal using selective high pass filters.

11. The method of claim 1, wherein the discrimination of cognitive load is between at least two levels of measured cognitive load of the user derived out of at least two corresponding stimuli.

12. The method of claim 11, further comprising variation of spatial distribution of frontal scalp EEG electrodes for measuring at least two levels of cognitive load.

13. A system for pre-processing of an electroencephalography signal of a user for cognitive load measurement, the system comprising:

a. a processor;
b. a memory coupled to said processor, the said processor configured to:

capture the electroencephalography signal of the user, wherein the electroencephalography signal is generated corresponding to a stimulus;

detect a plurality of system artifacts in the captured electroencephalography signal;

remove a noisy window from said electroencephalography signal;

detect an eye blink region in said electroencephalography signal, wherein the eye blink regions are detected using a clustering based method, said clustering based method comprising the steps of:

sub-dividing the EEG signal into windows of duration one second;

calculating the delta band power for each window as features;

applying a standard k-means algorithm on the features;

varying number of clusters and examining the value of k that gives minimum Xie-Beni index, wherein the Xie-Beni index indicates finest formation of clusters; and

extracting EEG data from a cluster corresponding to maximum size conditioned to lowest delta band power and marking data corresponding to remaining clusters as the eye blink regions;

filter out said detected eye blink region from the electroencephalography signal for measuring the cognitive load of the user; and

utilize filtered electroencephalography signal to measure discrimination of cognitive load among selected channels of the user, wherein the cognitive load for each channel is obtained using a product of change in mean frequencies and corresponding power for both alpha and theta band, said change measured between the filtered electroencephalography signal for Stroop stimulus and initial baseline data, and wherein the discrimination of cognitive load is obtained as a standard deviation of the cognitive load among the selected channels.

14. The system of claim 13, wherein the eye blink region is filtered out from the electroencephalography signal using selective high pass filters.

15. The system of claim 13, wherein the plurality of artifacts includes artifacts pertaining to said electroencephalography signal recording device.

16. The system of claim 15, wherein the artifacts pertaining to said electroencephalography signal recording device is selected from a group comprising of power supply interference, an impedance fluctuation, a spurious noise and an electrical noise and a combination thereof.