Claims

1. A personal wearable EEG monitor adapted to be carried at the head of a person, said EEG monitor comprising
   - EEG sensor part having skin surface electrodes for measuring one or more EEG signals from said person, wherein at least one electrode is adapted to be arranged in an ear canal of said person;
   - EEG signal analyzer adapted for having an EEG signal transferred from said EEG sensor part, and adapted for monitoring the EEG signal from said person,
   - EEG stimuli controlling means adapted for performing at least one of the following:
     - providing an auditory stimulus to said person from an auditory stimulus means in the ear canal of said person ~~with the at least one electrode adapted to be arranged in the ear canal~~,
     - requesting said person to perform a stimulus-creating act,
     - identifying a potentially stimulus-creating ambient sound,
   - EEG response detection means for identifying an induced response from the EEG signal caused by said stimulus, and
   - a classifier for deciding based on said at least one induced response if said skin surface electrodes receive EEG signals of said person.

2. An EEG monitor according to claim 1, wherein the electrodes are dry electrodes.

~~3. An EEG monitor according to claim 1 or 2, wherein said EEG stimuli controlling means provides an auditory stimulus to said person.~~

~~4.~~3. An EEG monitor according to any one of the previous claims, wherein said EEG stimuli controlling means is adapted for identifying sounds from the surroundings capable of causing an induced response.

~~5.~~4. An EEG monitor according to any one of the previous claims, wherein said EEG stimuli controlling means is adapted for requesting said person to open and close the eyes.

~~6.~~5. An EEG monitor according to any one of the previous claims, wherein said stimulus is repeated at least two times.

~~7.~~6. An EEG monitor according to any one of the previous claims, wherein said at least one electrode adapted to be arranged in the ear canal is arranged on an ear-piece, said ear-piece being provided with a permanent shape fitting the ear canal of said person.

~~8.~~7. An EEG monitor according to any one of the previous claims, further comprising a pad electrode external to the EEG sensor part, said pad electrode adapted to be arranged on the head of the person to be monitored.

~~9.~~8. An EEG monitor according to any one of the previous claims, adapted for testing the validity of at least three electrodes simultaneously, by identifying induced response.

~~10.~~9. An EEG monitor according to any one of the previous claims, wherein validation of electrodes by identifying induced response is combined with measuring the electrical impedance between electrodes placed on the skin surface.

~~11.~~10. An EEG monitor according to any one of the previous claims, comprising notification means for notifying said person if the EEG signal is not received.

~~12.~~11. An EEG monitor according to any one of the previous claims, comprising means for identifying electrodes receiving an EEG signal and selecting these electrodes for monitoring the EEG signal from said person.

~~13.~~12. An EEG monitor according to any one of the previous claims, comprising means for transmitting a wireless notification to an external unit in the event that the EEG signal is not received by the electrodes.

~~14.~~13. A method for continuously monitoring EEG signals of a person by an EEG monitor carried at the head of said person, said method comprising the steps of

- measuring one or more EEG signals from said person by an EEG sensor part having skin surface electrodes, wherein at least one electrode is adapted to be arranged in an ear canal of said person,
- transferring an EEG signal from said EEG sensor part to a processing unit having EEG signal processing means,
- monitoring the EEG signal from said person in said processing unit,
- causing an induced response in the EEG signal by performing at least one of the following:
  - providing an auditory stimulus to said person from an auditory stimulus means in the ear canal of said person ~~with the at least one electrode adapted to be arranged in the ear canal~~,
  - request said person to perform a stimulus creating act,
  - identifying a stimulus creating ambient sound,
- identifying an induced response from the EEG signal caused by said stimuli, and
- deciding based on said induced response if said skin surface electrodes receive EEG signals of said person.

~~15.~~14. A method according to claim ~~14~~13, comprising notifying said person if the EEG signal is not received by said electrodes.

~~16.~~15. A method according to claim ~~14~~13 or ~~15~~14, comprising identifying the specific electrodes receiving an EEG signal.

~~17.~~16. A method according to any one of claims ~~14~~13 to ~~16~~15, comprising reconfiguring the EEG monitor to measure the EEG signal by selecting electrodes receiving an EEG signal.

~~18.~~17. A method according to any one of the claims ~~14~~13 to ~~17~~16, comprising repeating the steps of causing an induced response in the EEG signal and identifying an induced response from the EEG signal at time intervals either preselected or adjusted according to previous decisions if said electrodes receive EEG signal.