PILOT MONITORING USING BRAINSENSE MODULE

T.ASAN ABRAHAM BALAJI
M.E. (INSTRUMENTATION ENGINEERING)
ST.PETERS UNIVERSITY

MR.P.BALAJI
HEAD OF THE DEPARTMENT
ST.PETERS COLLEGE OF ENGINEERING

Abstract— **Accidents caused by aero pilot concentration deviations have a high fatality rate due to the decline of pilot abilities in perception, recognition, and vehicle control abilities while deviation. Preventing such an accident requires a technique for detecting, estimating, and predicting the level of alertness of a pilot and a mechanism to maintain the pilot's maximum performance of riding. Preventing deviation during driving requires a method for accurately detecting a decline in pilot alertness and a method for alerting and refreshing the driver. This paper suggests a new way to alert the aero pilot with the real time monitoring of bio brain waves.**

Keywords— **Bio Brain Waves, Arduino Board, LCD.**

I. INTRODUCTION

Bio sensors have pulled in a remarkable enthusiasm for late years ,due to the expanding need of basic, fast and nonstop in situ of observing strategies in an expansive scope of ranges. No machine ought to ever be depended upon to spare human life, however as a reinforcement safeguard and an additional line of barrier the progressive and advantageous fixation cautioning framework goes a long way. This framework proposes an Ideal path for air ship pilot with respect to fixation deviation and to safe watchmen them from essential mishaps. Here human cerebrum is the real wellspring of signs; it coordinates the orchestra of cognizance that gives you reason and enthusiasm, movement and feeling.

Bio sensors have pulled in a remarkable enthusiasm for late years ,due to the expanding need of basic, fast and nonstop in situ of observing strategies in an expansive scope of ranges. No machine ought to ever be depended upon to spare human life, however as a reinforcement safeguard and an additional line of barrier the progressive and advantageous fixation cautioning framework goes a long way. This framework proposes an Ideal path for air ship pilot with respect to fixation deviation and to safe watchmen them from essential mishaps. Here human cerebrum is the real wellspring of signs; it coordinates the orchestra of cognizance that gives you reason and enthusiasm, movement and feeling. Christo Ananth et al. [3] discussed about a system, GSM based AMR has low infrastructure cost and it reduces man power. The system is fully automatic, hence the probability of error is reduced. The data is highly secured and it not only solve the problem of traditional meter reading system but also provides additional features such as power disconnection, reconnection and the concept of power management. The database stores the current month and also all the previous month data for the future use. Hence the system saves a lot amount of time and energy. Due to the power fluctuations, there might be a damage in the home appliances. Hence to avoid such damages and to protect the appliances, the voltage controlling method can be implemented.

International Conference on Recent Advances in Management, Architecture, Technology and Engineering (ICRAMATE'16)
Organized by
International Journal of Advanced Research in Management, Architecture, Technology and Engineering (IJARMATE)
21ˢᵗ March 2016

II. MEASUREMENT OF BIO SIGNALS

The human cerebrum is the most complex organ of our body. It is hard to comprehend its system because of the nearness of 14 billion neurons. Electroencephalography (EEG) is the extremely recognizable strategy to record the cerebrum signs, and it is absolutely utilized just for the medicinal methodologies. There are such a variety of sensors today to gauge the bio possibilities even from mind extremely precise especially of abundancy and recurrence. This sensor is manufactured in a style; it can enhance and change over the bio simple sign into computerized signal. Miniaturized scale sensors assume an indispensable part in human potential estimation framework in future it can be supplanted by nano sensors. This paper proposes a light weight cap sort sensor system and it is named as protective cap bio potential peruser which can in a flash measure the possibilities from the cerebrum at various time interims. It holds 22 sensors including two reference sensors which are extremely agreeable for the drivers also, pilots. The supply hotspot for the sensor is from a rechargeable battery. The position of sensor can be same as of the 10-20 terminal framework with two reference sensors.
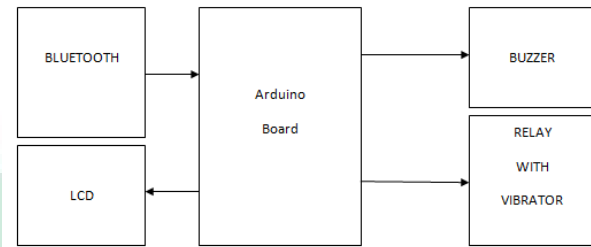

Fig.1. Transmitter

Fig.2. Receiver

III. CORRELATIONS

Connection is the shelter to discover the co-connection between the qualities. Relationship shows the quality and bearing of a direct relationship between two arbitrary variables. The signs gathered from the mind are to be corresponded. So that a self-governing quality for the diverse states of mind of the people can be predefined easily.Consider $X_1, X_2, X_3 \ldots \ldots \ldots X_{22}$ sensor yield are to be consolidated with the reference $Y_1, Y_2, Y_3 \ldots \ldots Y_{22}$ .The normal corresponded quality to be (X Y) that is to contrasted and the reference esteem. Relationship examination should be possible by utilizing the comparisons (1) and (2). Christo Ananth et al. [2] discussed about an eye blinking sensor. Nowadays heart attack patients are increasing day by day."Though it is tough to save the heart attack patients, we can increase the statistics of saving the life of patients & the life of others whom they are responsible for. The main design of this project is to track the heart attack of patients who are suffering from any attacks during driving and send them a medical need & thereby to stop the vehicle to ensure that the persons along them are safe from accident. Here, an eye blinking sensor is used to sense the blinking of the eye. spO2 sensor checks the pulse rate of the patient. Both are connected to micro controller.If eye blinking gets stopped then the signal is sent to the controller to make an alarm through the buffer. If spO2 sensor senses a variation in pulse or low oxygen content in blood, it may results in heart failure and therefore the controller

2

***International Conference on Recent Advances in Management, Architecture, Technology and Engineering
(ICRAMATE'16)
Organized by
International Journal of Advanced Research in Management, Architecture, Technology and Engineering
(IJARMATE)
21st March 2016***

stops the motor of the vehicle. Then Tarang F4 transmitter is used to send the vehicle number & the mobile number of the patient to a nearest medical station within 25 km for medical aid. The pulse rate monitored via LCD .The Tarang F4 receiver receives the signal and passes through controller and the number gets displayed in the LCD screen and an alarm is produced through a buzzer as soon the signal is received.

Utilizing VLSI creation method we can without much of a stretch manufacture a relationship chip. Utilizing VLSI programming the relationship recipe is inserted in the chip. The chip has the ability to store and additionally to process values in an ongoing velocity in nano seconds.

IV. BLUETOOTH

Bluetooth works at frequencies somewhere around 2402 and 2480 MHz, or 2400 and 2483.5 MHz including protect groups 2 MHz wide at the base end and 3.5 MHz wide at the top.[14] This is in the all around unlicensed (however not unregulated) Industrial, Scientific and Medical (ISM) 2.4 GHz short-extend radio recurrence band. Bluetooth utilizes a radio innovation called recurrence bouncing spread range. Bluetooth isolates transmitted information into bundles, and transmits every parcel on one of 79 assigned Bluetooth channels. Every channel has a data transmission of 1 MHz. It more often than not performs 800 bounces for each second, with Adaptive Frequency-Hopping (AFH) enabled.[14] Bluetooth low vitality utilizes 2 MHz dividing, which obliges 40 channels. Initially, Gaussian recurrence shift keying (GFSK) balance was the main regulation plan accessible. Since the presentation of Bluetooth 2.0+EDR, $\pi/4$-DQPSK (Differential Quadrature Phase Shift Keying) and 8DPSK tweak may likewise be utilized between perfect gadgets. Gadgets working with GFSK are said to be working in essential rate (BR) mode where a quick information rate of 1 Mbit/s is conceivable. The term Enhanced Data Rate (EDR) is utilized to portray $\pi/4$-DPSK and 8DPSK plans, every giving 2 and 3 Mbit/s individually. The mix of these (BR and EDR) modes in Bluetooth radio innovation is named a "BR/EDR radio". Bluetooth is a bundle based convention with an expert slave structure. One expert may speak with up to seven slaves in a piconet. All gadgets share the expert's clock. Bundle trade depends on the essential clock, characterized by the expert, which ticks at 312.5 µs interims. Two clock ticks make up a space of 625 µs, and two openings make up a space pair of 1250 µs. In the basic instance of single-opening parcels the expert transmits in even spaces and gets in odd spaces. The slave, on the other hand, gets in even spaces and transmits in odd openings. Bundles might be 1, 3 or 5 openings in length, however in all cases the expert's transmission starts in even spaces and the slave's in odd openings.

V. CONCLUSION

Accidents caused by aero pilot concentration deviations have a high fatality rate due to the decline of pilot abilities in perception, recognition, and vehicle control abilities while deviation. Preventing such an accident requires a technique for detecting, estimating, and predicting the level of alertness of a pilot and a mechanism to maintain the pilot's maximum performance of riding. Preventing deviation during driving requires a method for accurately detecting a decline in pilot alertness and a method for alerting and refreshing the driver. This paper suggests a new way to alert the aero pilot with the real time monitoring of bio brain waves.

REFERENCES

[1] Biomedical instrumentation based on electrooculogram (EOG) signal processing and application to a hospital alarm system Venkataramanan, *and Information Processing*, 2005.
Proceedings of 2005 International ConferenceonVolume , Issue , 4-7 Jan. 2005 Page(s): 535 – 540

International Conference on Recent Advances in Management, Architecture, Technology and Engineering (ICRAMATE'16)
Organized by
International Journal of Advanced Research in Management, Architecture, Technology and Engineering (IJARMATE)
21st March 2016

[2] Christo Ananth, S.Shafiqa Shalaysha, M.Vaishnavi, J.Sasi Rabiyathul Sabena, A.P.L.Sangeetha, M.Santhi, "Realtime Monitoring Of Cardiac Patients At Distance Using Tarang Communication", International Journal of Innovative Research in Engineering & Science (IJIRES), Volume 9, Issue 3,September 2014,pp-15-20

[3]Christo Ananth, G.Poncelina, M.Poolammal, S.Priyanka, M.Rakshana, Praghash.K., "GSM Based AMR", International Journal of Advanced Research in Biology, Ecology, Science and Technology (IJARBEST), Volume 1,Issue 4,July 2015, pp:26-28

[4] Sensing the Human Alpha Rhythm Using a Non-Contact Electroencephalo –gr Electrode Bioengineering Conference, 20 *Proceedings of the IEEE 32nd Northeast Vo*195 - 196

[5] IEEE 802.15.4 downloadable at standards.ieee.org/ getieee802/.

[6] Zigbee technical documents at www.zigbee.org.

[7] CC2420 Datasheet, downloadable a www.chipcon.com

[8] Engineerig mathematics on correlation approach by Prof.Dr.Veerarajan.

[9] Concep J. J. Jones Powell Danpat Rai Publication.