Human dependence on computers is increasing day by day, thus human interaction with computers must be more user-friendly and dynamic rather than generalized or static. Thus, in order to get a more customized and user-centric experience, it is important for computers to understand, comprehend, and respond according to the emotional state of persons interacting with them. For this emotion recognition system could play an important role as emotions are the driving force behind many of human behaviours actions and decision-making. Emotions are revealed by a human through either facial expression, verbal expression, or several physiological signals such as variability in heart rate, skin conductance, brain electrical activity, etc. which are generated by the human body in response to any external emotion elicitation.

Emotion recognition system has a vast area of applications such as health care, brain-computer interface (BCI), education, smart entertainment system, smart rooms, intelligent cars, psychological study, etc. Emotion recognition system-based smart entertainment systems, virtual reality systems etc. can help in enhancing user experience by playing content as per the user mood. Similarly, such systems can also be used to understand the health condition of patients with mental disabilities or infant patients. Also, it can be used to monitor students learning and create personalized educational content for students.

Various research have been done in detecting human emotions using facial and verbal expressions. But such externally visible expression can be faked or forged, resulting in false detection of emotion. However, physiological signals which reflect internal functioning related heart, brain and other subsystem of body cannot be controlled or modulated by human.

To address such futuristic requirements and avoid false detection of emotion, research work using several different physiological signals is being carried out at IIT Indore. Dr. Ram Bilas Pachori, Professor in the Electrical Engineering department of IIT Indore has received a grant from Council of Scientific & Industrial Research (CSIR), Government of India, to carry out research on the project titled "Automated classification system for human emotions based on physiological signals".
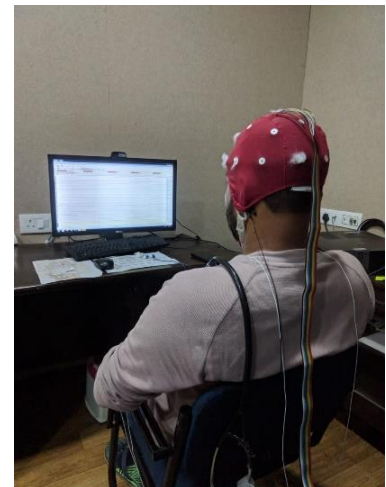
Experimental setup for the study

For getting physiological signals related to different emotions various participants are called and shown video clips for elicitation of emotion in them. Then using various advanced signal processing techniques the obtained signals are processed and the emotional state of person is determined. Principle Investigator Prof. Ram Bilas Pachori, and Senior Research Fellow Aditya Nalwaya are working in the development of such automated systems.

Dr. Ram Bilas Pachori
(Principle Investigator)

Aditya Nalwaya
(Senior Research Fellow)