MIND READING COMPUTERS

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Abstract -Mind reading is a technique to read the mind state of other person. This can be done by getting the facial expression and by seeing his activity. For example a tensed face can give us an expression of stress. But now not only a human can read the mind it may be possible that a computer system can also read the mind of a person. This paper describes the technique by using that a computer system might read the mental state of a person and thus becomes a mind reading computer. Mind reading can be done by using Facial expression analysis and Futuristic headband.

Key words: Introduction, Mind Reading Computer, Mind Reading & Necessity of Mind Reading, Facial Action Unit Analysis, Head Pose Estimation, Advantages and Application, Disadvantages, Conclusion, References.

1. INTRODUCTION

Mind reading computer may be defined as a machine that infers the human being's mental states. The understanding of a person's thoughts is the most complex tasks. No one knows what a decision would be taken by the person in upcoming second by executing his present thoughts or what is his present thinking about any other person and what would be the next action of that person and many more. But all these questions can be answered by mind reading computer.

Mind reading computer uses various Technologies, to inferring the thoughts of a person for example by scanning the facial expressions along with head gestures and by identifying the volume and oxygen level inside the blood which is flowing in the vicinity of brain. We can say that in future we might have numerous technologies that will help to inventing the mind reading computer.

Mind reading by a computer can provides us many applications in the field of medical, crime and one's life also.

2. MIND READING & NECESSITY OF MIND READING

Mind reading computer is defined as to detect the person's thoughts and emotions etc. The first step of mind reading to understand the facial expressions of the person because human express their mental states mostly by facial expressions and gestures .This doesn't matter they are communicating or not.in actually a decision taken by the person is To be completely depend on the mental states and he reacts in that way which affects the performance .the things Which are to be happen i.e. to be only because of thoughts. Suppose if we have mind reading computer then we can change the decision of anyone if it is worst or any wrong intension we can also prevent this and the wrong intension can be changed into good intension.

By using the mind reading computer we can also prevent the crimes. for example we can know the metal state of a criminal and can change their mind so we don't need to give him punishment only a computer system is required hence the world will be more better than it is now. But if we want to change the mind of a person according to our desire then it is not possible now. But in future this may also be possible. So Mind reading will be the basic step for that technology. Also just imagine we are now in digital world we are in a generation with cell phones, cars and online services and all these System are able to read our mind can react accordingly. It will make our life so easy where only by just thinking we can do what we want and can operate our system's process according to us. This system will be more beneficial for handicapped and a paralyzed person. He can also operate the cell phones, can drive the cars, and can also use the online services only by just thinking. This system will improve the communication skills as well as social interaction .So the mind reading is the most necessary for all things to be happened. Only a computer is required to give the punishment no need to anyone else.

This can change the mind and can stop the violence and will make the better world than it is now. However, this technology by computer, to change

The mind according to a desire is not established now. But in future it might be developed. So for all this mind reading computer is just the basic step. Also consider a situation where we are surrounded with mobile phones,

online services and cars and the all these systems can read our minds and react accordingly. By just thinking we can order our system to work accordingly. Moreover it becomes a boom for a physically handicapped person because he will able to drive a car, access online services and mobile phones just by thinking. All we can do is to give a mind reading machine that will be able to read mind by scanning the facial expression. Mind reading computer system might also be used to improve communication. The affective computing group at the MIT Media laboratory is developing emotional-social intelligence prosthesis.

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3. MIND READING COMPUTER

Mind reading computer system technology can be used for checking the mental state of a person he doesn't need to type or speak anything system will understand this by default. University of Cambridge is also working on a model of mind reading. Mind reading can be done by scanning facial expressions.

The working of machine is based on digital video camera which is used for analyzing a person's facial expressions in real time and to understand the mental state like confused or thinking or happy or sad, interested not interested etc. Firstly head gesture and facial expressions express the particular person's mental state which is to be stored In machine's database and after that this result is to be matched with the stored database data then after the successful match it returns the final result i.e. mental state. This is represented as model at different granularities that stores face and head movements. These are represented in 3dimensional space to form a clear model that depicts the Facial Expressions .By using Navision's software 22 feature points are identified after that represents these points in real time. Different parameters and movement are then analyzed that identify gestures like open mouth, eyes Movement and half closed eyes.

When all these combinations come to the real point they depict the mental states. For example thinking of a human is specified by the inner raise of eyebrows.

4. FACIAL ACTION UNIT ANALYSIS

Facial action unit analysis is performed by FACS (facial action coding system).this system is used for analysis of facial action units which is inspected by the eyebrow raise inner and outer, lips apart, mouth stretch, yaw left depression and stretch etc.

5. HEAD POSE ESTIMATION

It makes use of expression, points if estimations are pich (500), Roll (300) and yaw (500). Feature points are used to recognize for facial expressions. Basically there are two types of analysis the first one is motion and shaped Base Analysis and the second is color based. Motion and shape based analysis is used for real time video system and color based is useful for computational. Smile of a face is identified by lip shape tracking polar distance between two mouth corner and anchor point is computed by lip pucker. Change in polar distance is calculated with respect to initial frame.
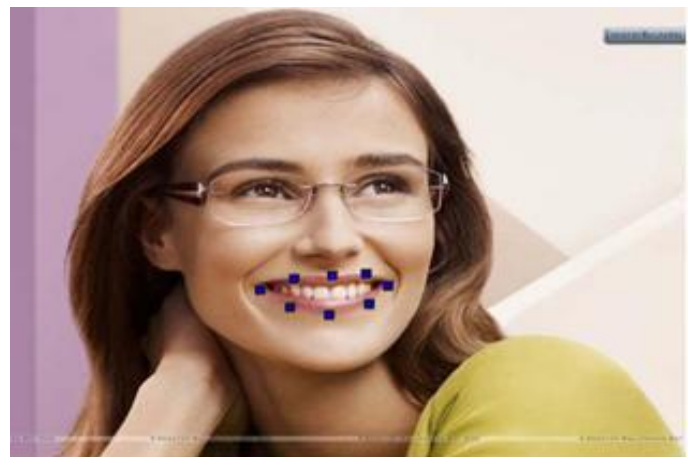

Fig -1: Mouth Displays.

Estimation of head roll using the angle between the two inner eye corners

Mouth is open or closed this is identified by color descriptors. Space between lips and teeth are to be represented by different color. For example green color represents the teeth and red color represents the space. Another method of mind reading can be done by using futuristic headband which we have to wear over the head. In this process oxygen and volume level of blood is measured this technology is called FNIRS (functional near-infrared spectroscopy).The user wears futuristic headband that sends infrared signal into the tissues of the head where it is absorbed by active blood filled tissues.

The headband then also measures that how much light was not preoccupied letting the computer gauge the metabolic demands that the brain makes. These results are often matched with an MRI but can be gathered with lightweight equipment. Another technology for mind reading can be electroencephalograph this device takes the electrical current from the various parts of the brain this device is used by the medical researchers.

By Specific thoughts, emotions, if we are able to understand brain waves Another way or we can precisely say another technology of mind reading is existed in which electroencephalograph, a device used by medical researchers to pick up electrical currents from various parts of the brain. If we could learn to find brain waves generated by specific thoughts, emotions or desires, we might be able to teach same skill to the computer.

Fig -2: Futuristic headband.

6. ADVANTAGES AND APPLICATION

This technology can be helpful for paralyze patients and handicapped person this can also be very useful for comma patients who are to be unable to speak. For example a prototype mind controlled wheelchair developed from the University of Electro Communications is Japan. This works by mapping brain waves when you think about moving left, right, forward or back and work accordingly.

This can be used in military purposes, sting operations and in investigations. Mind reading computer can prevent from terrorism. Also it can be combined with consoles and used for mind gaming.

7. DISADVANTAGES

The biggest disadvantage of this system is that confidential data can be hacked by unauthorized person so the privacy can be breached. terrorist and hackers can steal the important data so this can be more dangerous and also 100% accuracy can't be gained by using mind reading computers. Accuracy of the mind reading computer can be up to 86.4%.

8. CONCLUSION

This paper describes how a user can read the mind of other person by using mind reading Computer. In this technology present real time video is compared with already installed video of facial expression which represents the mental state.

Another way of detecting the mental state is to be done with the help of futuristic headband which sends Infrared light into head's tissues which absorbed the light.

9. REFERENCES

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