# Mind Control Smart Car

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**Abstract**

*In this project we present an approach to control a car with brain signals. To achieve this, we use a brain Computer interface (BCI) which is connected to our car. The car is equipped with a variety of sensors and can be controlled by a Brain. We implemented two scenarios to test the usability of the BCI for controlling our car. In the First scenario our car is completely brain controlled, using four different brain patterns for steering and throttle/brake. We will describe the control interface which is necessary for a smooth, brain controlled driving. In a second scenario, we have designed the adaptive headlamp with obstacle sensor and also we have fog light which will work according to weather condition we have also implemented the automatic side indicator which will turn on when the indicator light is on we will also We evaluated our approach in a variety of experiments on a closed airfield and will present results on accuracy, reaction times and usability.*

## I. INTRODUCTION

Smart Homes, also known as automated homes, intelligent buildings, integrated home systems or domestics, are a recent design development. Smart homes incorporate common devices that control features of the home. Originally,smart home technology was used to control environmental systems. A concept on smart home application and development includes various implementation techniques and is ever growing. Smart home systems are created based on analysis on client needs and budget to cater for the system. With technologies available today, efficient integration of this system could be achieved. Home automation is a new concept that encompasses the ability to control electrical and electronic devices at home remotely thus providing ease of access to the users. This concept may be applied in various manners to fit the requirement of a smart home.

The Brain-Computer Interface technique is treated as a communication system that serves the person to operate the devices by using his or her own thoughts. The data flows from brain to the outside machinery or from outside machinery to the brain. Different research groups have examined and used different methods to achieve this. All these method uses electroencephalography (EEG) signals which are taken from the scalp. The different brain states are the outcome of the various arrangements of neural interaction. These pattern leads to the waves that are characterized by various amplitude and frequency values.

EEG is the most studied non-invasive interface, which provides temporal resolution, ease of use, portability and low set-up cost. EEG measures voltage fluctuations resulting from ionic current within the neurons of the brain. Neurons or nerve cells are the building blocks of the brain. Nerve cells interact and communicate information through electrical signals. This creates a neural pathway for information flow or a neural network. The way in which these pathways are arranged can account for our thoughts and emotions. Every thought or emotion, thus have their own unique pattern. Therefore these patterns can also be caused by muscle contraction of the eye blink and can be detected by brain wave sensor. A brain wave sensor then transmits the data buy using the Bluetooth medium. Then the Level Analyzer Unit (LAU) receives the data packets and processes them. MATLAB is used for this process .Using this process we can control physical devices from thoughts and muscle contractions of an eye i.e., eye blink muscle contraction values.

**Area of Project**

- An approach to control a car with brain signals.
- To design adaptive headlamp with obstacle sensor
- Auto side indicators and light switching (Normal/Fog)

## II. RESEARCH METHODOLOGY

 

The brain signals are used for different applications. A Human-Machine Interfaces (HMIs) based on EMG signal and EEG signal was proposed in. In , the brain waves are used to detect the driver drowsiness. When the driver starts driving the car, the brainwave sensor unit calculates the eye blinking level and also compares the driver's present attention value with the recorded minimum attention value. When the eye blinking value crosses the set point, the driver gets an alert. The measurement of brain activity using mind wave is proposed in Here, the system helps the person to better understand how human brain works in terms of learning, attention, memory, thinking, etc., The data values measured from the mind wave headset are compared with the stored database in the PC.

**Purpose of Project**

- The system will be control by thinking
- System will avoid the accident caused due to fog
- The system can be implemented in the car
- The system can be implement in the Bus trucks or heavy vehicles
- The system is can be implement in two Wheelers

**Method Used**

In this project we present an approach to control a car with brain signals. To achieve this, we use a brain Computer interface (BCI) which is connected to our car. The car is equipped with a variety of sensors and can be controlled by a Brain. We implemented two scenarios to test the usability of the BCI for controlling our car. In the First scenario our car is completely brain controlled, using four different brain patterns for steering and throttle/brake. We will describe the control interface which is necessary for a smooth, brain controlled driving. In a second scenario,

we have designed the adaptive headlamp with obstacle sensor and also we have fog light which will work according to weather condition we have also implemented the automatic side indicator which will turn on when the indicator light is on we will also We evaluated our approach in a variety of experiments on a closed airfield and will present results on accuracy, reaction times and usability.

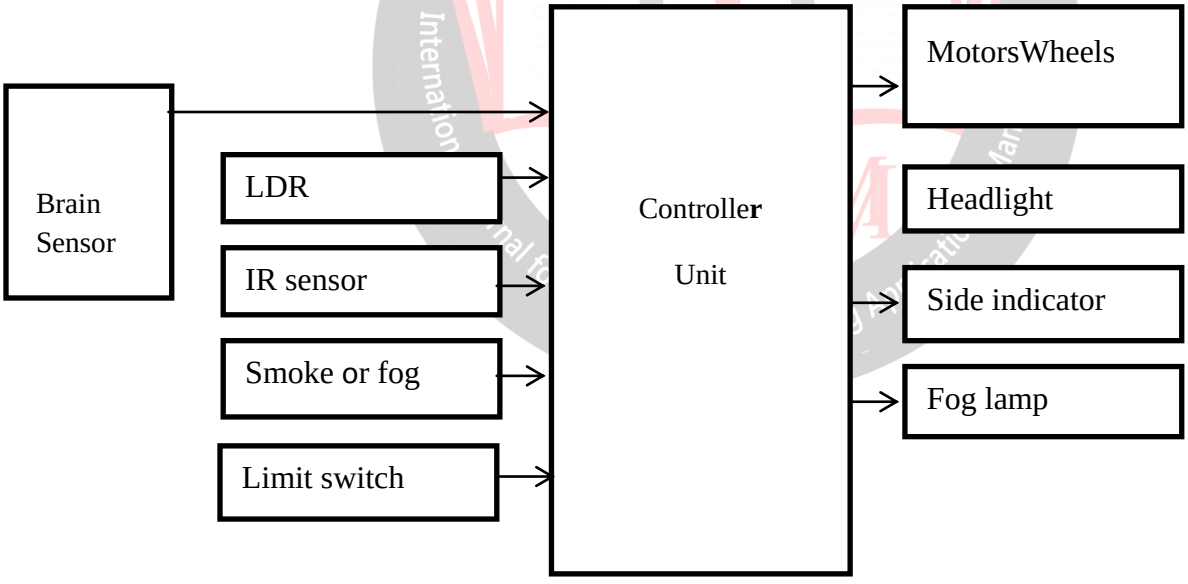


***Fig. 1 Block Diagram of System***

## III. RESULT

The following outcome should be achieved by the system

1) The system should controlled by the mind
2) The system should avoid the accident caused due to heavy fog

 

3) System should automatically turn on the indicator when user turn
4) As student we should get the knowledge of the EEG module
5) Also the knowledge of the controllers

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