**Head Gear – Smart Helmet**

**Brief Description:**

Head Gear is a smart helmet which is designed to avoid road accidents and enhance safety of the rider. Its main feature includes accident prevention which is accomplished by a set of features such as over speed detection based on permissible speed in a given region, alcohol detection & ignition locking mechanism and visual & voice enabled warnings on approaching intersections & pedestrian crossings. It also has visor embedded HUD for interactive navigation assist & warnings. The head gear also has a special "bone conduction type" earphone which doesn't fit in our ear canals unlike traditional earphone instead sits on the side whiskers, this enables audio to be fed to the rider without blocking other surrounding sounds. A Noise cancelling microphone will be placed near chin guard for active communication with head gear voice assistant. Accelerometer & impact sensor detects any fall or accident & alerts emergency contacts & services and also ensures the driver wears the helmet always.

**What is your problem statement?**

In India 2 wheelers account for 25% of the total road crash deaths yearly which is a major point of concern. Since wearing helmets is made compulsory, we can implement smart sensors in the helmet which could prevent road accidents not only my making the wearer compulsorily wear the helmet before driving but also monitor other aspects like drunk & drive, warnings for approaching intersections & pedestrian crossings, immediate medical support in-case of a fall or accident, over speed detection, implementing HUD & voice assist for avoiding use of cell phones while driving, & thus avoiding accidents beforehand. A smart helmet like this could improve the safety of riders as well as pedestrians and other travellers..

**What is your unique solution?**

The solution involves developing a smart helmet called Head Gear whose unique features are listed below:

1. Visor embedded HUD for navigation assist, road safety warnings like approaching intersections & pedestrian road crossings and over speed alert.
2. Bone conduction type earphone which sits on side whiskers thereby allowing us to hear the surrounding and at the same time hear warnings, make calls & interact with voice assistant in our mobile.
3. Over speed detection based on permissible speeds in a given road and alcohol detection - vehicle ignition will be locked when detected
4. Alerts emergency contacts with geo-location in-case of accident or fall detection.
5. At speed above 25 kmph helmet senses if the driver is wearing the helmet without which the ignition will be locked.
6. Noise cancelling microphone enables effective noise free communication with the voice assistant.

**What is the Innovation/Disruption/Invention in your solution?**

Bone conduction type earphone provides better audio quality than placing speakers inside the helmet & also ensures privacy as it isn’t audible to the surrounding.

Fool proof system - After 25 kmph ensures/check again whether the driver is wearing the helmet while driving so that all safety features can be actively utilized.

Combines the functionality of HUD, google assistant, dedicated noise cancelling mic & earphone for a first in class digital infotainment system combined with safety features.

Head Gear ensures effective noise free usage of voice assistant with the help of noise cancelling mic which can function even at the noisy road environments.

HUD is used for limiting mobile usage while driving by implementing features like navigation, safety warnings & blinking alerts.