

SMART HELMET WITH LIVE MAP NAVIGATION SYSTEM

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Abstract - A smart helmet with live-map navigation is a special idea which makes motorcyclists driving safer than before. The first motive of this smart helmet navigation for provide rider safety. This implement by using advance feature like Micro display, electronic main board, light sensor, earphone, battery and microphone. The effect when a motorcyclist involvements in a very high speed accident without wearing a helmet is cause injury or death. This paper perform a detailed and comparative study on smart helmet with live-map navigation system.

Key Words: Navigation, Electronic Board, Light Sensor, Micro-display, Great visibility, AR-Technology.

1. INTRODUCTION

Nowadays helmets have been made obligatory in Maharashtra kingdom. Traffic accidents in India have increased yr. via year. As in step with section 129 of motor cars act, 1988 makes it required for every unmarried using a two-wheeler to put on defensive headgear following to standards of the BIS (bureau of Indian requirements). In India drunken drive case is a criminal offence of the motor vehicle act 1939. Which states that the motorcycle rider will get punish. In lifestyles bike rider without problems get escaped from regulation [1]

There are the many predominant motives us for observe this undertaking. 1st powerful navigation tool. The usage of maps require common stops navigators distract the biker's interest and now not secure to be operated on to move. motorcyclists want get admission to maps much like absolutely everyone else, but counting on a touch-display screen GPS, cellphone, or whipping out a paper map isn't pretty as secure whilst there's not anything protective the motive force from the outdoor world (and allows be frank, whipping out a map even as riding is not practical for all people). Seeing that helmets already capabilities as motorcyclists' windshields, they could as well serve as their navigation assistants as properly. The livemap helmet places all of the essential instructions the front and center [2]. 2nd pursuits to make GPS navigation

greater reachable to motorcyclists within the shape of a brand new type of helmet. This helmet interacting with a GPS touchscreen interface isn't always exactly at ease or reachable or even searching at it approach taking your eyes off the road. Smart helmet live-map navigation, on the other hand, is inspired by fighter pilots, who have "heads up" presentations showing them crucial information without delay in their helmets [3]. Similarly, livemap plans to construct bike helmets that show navigation records immediately for your discipline of view. The helmets will use an android running gadget with nuance-based totally voice manipulate and NAVTEQ mapping records. As for the display it meaning it doesn't harm your eyes.

1.1 OBJECTIVE OF PROJECT

- augmented fact for easy and user-pleasant navigation
- clearly seen collimated picture i.e. it's far continually in cognizance, just like that in scope sights [2]
- full-color, translucent photograph is projected right on the visor like in a f-35 fighter helmet, it is secure, offers unobstructed view, does not distract attention and removes the need for a separate display
- intended length of the gadget suits a motorbike helmet - our helmet goes to be simply a bit bigger than ordinary two 3000 mAh batteries for a long operation time
- microphone for voice control that keeps both hands free for driving
- earphones
- light sensor for adjusting the photo brightness according to external mild conditions
- g-sensor, gyroscope, digital compass for head motion monitoring (the picture modifications in line with the view direction)
- Own minimalistic interface as a way to be used rather than trendy android interface.

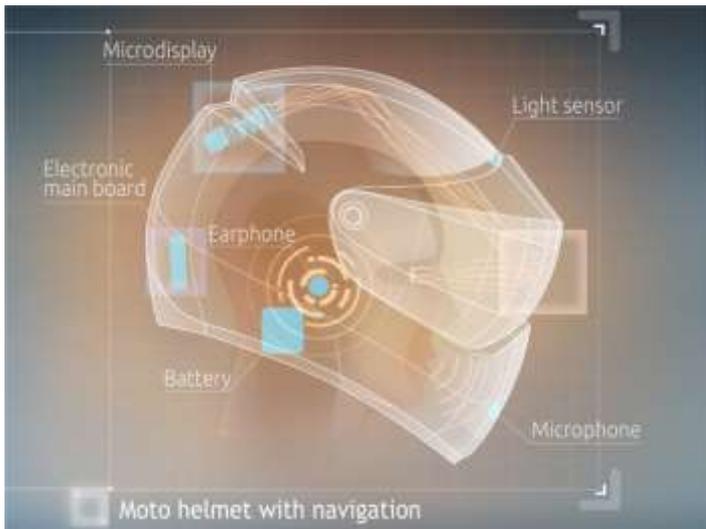


Fig 1: Smart helmet Design

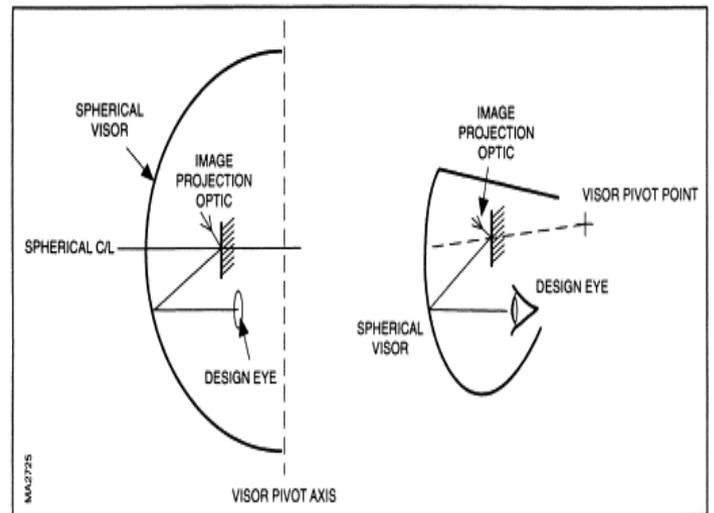


Fig 2.1.2: Visor working image

2. SYSTEM DEVELOPMENT

2.1 MOUNTED DISPLAY (MICRO-DISPLAY)

A helmet installed optical show of GPS-primarily based path records managed by a natural language voice-command machine like iPhone's "siri."

The display projector is installed above and at the back of the wearer's head however in the carbon fiber shell [4]. Its picture, containing the standard navigation facts, is projected such that the person sees the records superimposed on his/her visual view. Because the show is focused at infinity, the consumer need no longer alternate awareness to look it. He or she simply speaks requests for new records into a microphone.



Fig 2.1.1: Mounted Display

At the same time as a head-up display for motorcycles is surely manageable, a helmet-installed display is more convenient, permitting the consumer get entry to information at any head angle.

The visor features both as the device optical combiner and personal defensive gadget for the rider. The visor fabric is optical poly-carbonate. For HMD device, the mechanical and environmental residences of the visor are as vital as the optical residences. The visor need to meet stringent dimensional necessities to guarantee ok machine optical overall performance. Injection molding can provide dimensional constancy to the requirements, if carried out well [6]. Concurrent layout of the visor and the device (i.e., the injection mildew) is crucial. The concurrent format always considers manufacturing operations and the use surroundings of the visor [9]

2.2 LIGHT SENSOR

Light sensor designed the image to usually be clear, even in negative visibility situations. It robotically adapts to the environment. Just like iPhone or android cellphone. In accordance to the World Health Organization, 350 people within the global die every day only because of negative visibility on the road [3] the mild sensor is automated change the brightness and adjusting the show in keeping with the surroundings. This mild sensor is care about your safety. With regards to lights, the helmet will show your picture in a manner in order no longer to dazzle your eyes. The lighting fixtures will adjust itself in keeping with the weather outside. So for the duration of rains and fog, the image will enliven for a higher view, and on sunny days, it is going to be gentle sufficient to your delicate eyes.



Fig 2.2.1: Sun days Display



Fig 2.2.2: Dark Night Display



Fig 2.2.3: Bad Weather Display

These light sensor gadgets routinely modify display brightness based totally on the surroundings and function similarly well in a ramification of light sources ranging from natural daylight to fluorescent, traditional incandescent. An vital function of the AMIS-74980x is its low darkish cutting-edge, allowing the show to regulate the brightness of the show even in low mild-stage environments [7]

2.3 USER INTERFACE

The user interface goes to be minimalistic and simple. The list of voice instructions will be brief, all commands natural and understandable through context. For the case the consumer is in problem formulating an appropriate command the help option is only a command ("Help!") away [8]



Fig 2.3.1: User View



Fig 2.3.2: Map View Display 1

Evaluation map can be considered whenever your velocity is near 0 (displaying map at high velocity is unlawful because of safety motives).

The navigation maps can be pre-loaded, so that you are stored from the problem of downloading them for yourself. But, the maps may be updated on a normal foundation. Despite the fact that internet receiver's be wanted to show you the special routes, you'll require it for any updates on climate modifications and traffic information [10].



Fig 2.3.3: Map View Display 2

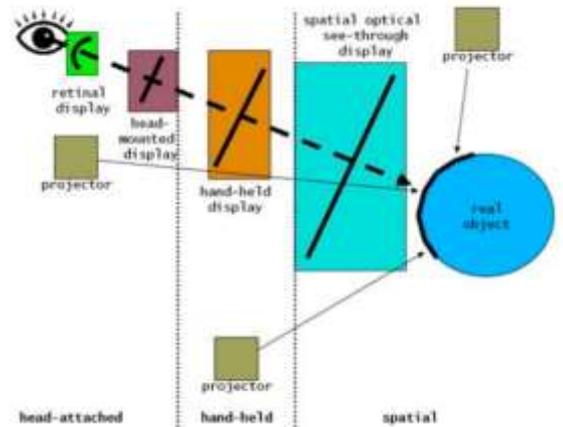


Fig 2: Image-generation for augmented reality display.

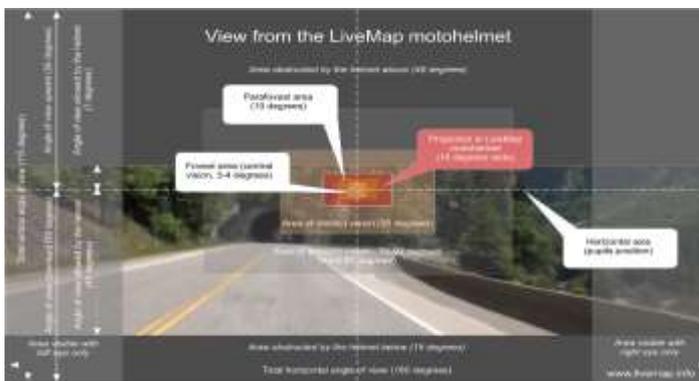


Fig 2.3.4: Map Closer View

Pay attention to the above schema. It tells you why we region the photo inside the middle of view area. That's because that is the vicinity.

2.4 ARGUMENTED REALITY INTERFACE

Precise AR-technology gives you with a projected coloration obvious photo instead of using bulky and inconvenient shows. Automated adjustment of output, with complete consciousness on road safety. Get the essential data like by no means earlier than [3]. It places GPS, speed and different parameters in the front of your face.

3. AR-TECHNOLOGY

- retinal display
- head-mounted display
- hand-held display
- spatial optical see-through display
- Projected display on object.

Drawing on some of these thoughts, the subsequent category permits us to speak approximately a range of visual displays able to rendering blended and augmented realities, whether regionally or remotely situated with admire to the truth being augmented, to people or organizations [13] :

Proximity dimension:

- **Proximal:** retina and head set up displays, which may be grouped together as augmented visual field device (AVFDs)
- **Hand-held:** hand-held devices inclusive of phones or tables.
- **Distal:** free standing presentations (e.g. monitors or projected shows)

Viewpoint:

- **first degree (first person?):** first person view
- **second degree (bystander?):** collocated with viewer and capable of presenting them in the visual scene
- **Third degree (third party? remote?):** representing a non-local visual scene.

4. CONCLUSION

The paper discuss idea of Live-map with navigation helmet is a "smart helmet" that is a helmet with an effective navigation tool that makes the conventional method of navigating with a physical map in hand, redundant. in any case, stopping at ordinary duration and checking if you're at the right tune or now not can be time consuming and traumatic. The crew in the back

of Live-map helmets have worked hard with willpower and resolution to bring to you clever helmets that are equipped with navigation structures wherein the snap shots are projected on the visors, and utilize earphones and voice controls to preserve the rider's hands-free and provide numerous other functions.

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