

Multi Access Helmet

Suda Mounika, Kallakunta Ravi Kumar, Madala SindhuVardhan, Emmela Suneetha



Abstract : In our daily life we can see so many road accidents are increasing daily especially the bike accidents are increasing more and more because of so many things like high speed, drunk and drive, riders not using helmet, using mobile while driving and due to the late of ambulance in all these cases riders are not taking care of their lives and they are losing their lives so we are going to introduce a "MULTI ACCESS HELMET" which will solve some of the above problems and we can reduce the accident rate by using this project. The essential purpose of this errand is to save a couple of presences of the people. This venture incorporate a few sensors like gas sensor, ultrasonic sensor and vibration sensor. The gas sensor is utilized to recognize the liquor taken by the rider on the off chance that the liquor level is more prominent than the limit, at that point the ringer will be on and furthermore the red light will likewise on which show the threat sign and the rider won't ready to where the cap right now, on the off chance that he isn't wearing the head protector, at that point the bicycle additionally won't begin. Ultrasonic sensor will perceive the thing if the article is recognized in the more drawn out partition, by then also the chime will on and the red drove is on, it shows the rider to wear defensive top right currently bike won't begin. Vibration sensor is utilized to detect the vibration if the bicycle contacts the ground the recurrence scope of vibration increments on the off chance that it builds, at that point the area of the vehicle is followed utilizing the gsm and the message is sent to closest emergency clinics utilizing gps module..

Index Terms: IOT, Multi access Helmet, Sensors, Ultrasonic, vibration, Gas sensor.

I. INTRODUCTION

Bicycle mishaps are bit by bit expanding and adding to the loss of numerous lives. By utilizing the cap, the danger of bicycle mishaps can be diminished. There are numerous occurrences occurring in regular day to day existence that need to discover an answer when the episode happens. In any event, when clinics give rescue vehicle benefits, the passing rate doesn't diminish. There are two significant criteria that are confirmed by brilliant protective cap before the bicycle begins to defeat every one of these issues. Next, test whether and not just holding a top is used by the customer. Using the Ultrasonic sensor, it will in general be recognized. Furthermore, there must be no alcohol in the breath of the customer. Utilizing gas sensor, it very well may be taken note. The gas sensor can detect the riders breathing when the individual is exceptionally devoured by the liquor to distinguish the measure of liquor content. Third, if an individual meets a mishap, the sensor will recognize

the state of the bicycle and the area of the individual will be sent to close by emergency clinics through GPS to the medical clinic's primary server. This prescribes the individual isn't hurt and the bike is going to start.

The Arduino Uno is an open-source microcontroller board dependent on the Microchip ATmega328P microcontroller made by Arduino.cc. The board is equipped with sets of computerized and direct information/yield (I/O) sticks that can be interfaced with various sheets of progress (shields) and different circuits. The board has 14 advanced I/O pins (six equipped for PWM yield), 6 simple I/O sticks, and is a programming board. It is like Arduino Nano and Leonardo also. The reference plan for equipment Distributed under the Creative Commons Share-Alike permit 2.5 and accessible on the Arduino site. Design and creation documents are likewise accessible for some equipment forms.

The expression "uno" signifies "one" in Italian and was picked to stamp the underlying arrival of Arduino Software. The Uno board is the first in a development of Arduino sheets dependent on USB it and modification 1.0 of the Arduino IDE are Arduino's reference forms, which have now formed into more up to date discharges. The board's ATmega328 is pre-altered with a bootloader that licenses new programming to be downloaded to it.

A gas pointer is a contraption that, a significant part of the time as a noteworthy piece of a security structure, sees the closeness of gases in a locale. This sort of apparatus can be utilized to perceive a gas spill or different transmissions and can interface with a control framework so a procedure can be closed down typically. In the domain where the discharge occurs, a gas identifier will sound an alert to workers, permitting them the opportunity to leave. This sort of contraption is huge in light of the fact that various gases, for instance, individuals or animals, can be ruinous to regular life. It is possible to use gas markers to perceive fuel, burnable and noxious gases and utilization of oxygen. This sort of device is commonly used in industry and can be found in places like Monitoring systems of creation and creating propels, for instance, photovoltaic on oil rigs. In firefighting, they can be used. SIM808 Module is a finished GSM/GPRS Quad-Band module that consolidates satellite route GPS innovation. The minimal plan that incorporates GPRS and GPS into a SMT bundle will fundamentally spare clients time and expenses in creating GPS-empowered applications. With an industry standard interface and GPS work, it empowers consistent following of variable resources at any area and with signal inclusion whenever.

Tinkercad is a free online collection of programming tools that help people around the world think, build and produce. It is the perfect introduction to Autodesk, the pioneer in technology for 3D modeling, engineering and entertainment.

The vibration sensor is correspondingly called a piezoelectric sensor.

These sensors are flexible gadgets which are utilized for assessing different strategy. This sensor utilizes the piezoelectric impacts while evaluating the developments inside quickening, pressure, temperature,

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power in any case strain by changing to an electrical charge. LCD modules are usually used in most embedded endeavors, due to their low worth, openness and all around arranged programming engineer. Most of us, either at PCO's or smaller than expected PCs, would have gone over these introductions in our regular day to day existence. The appearance and pinouts have quite recently been showed up finished, we ought to get fairly particular now. Since it has 16 portions and 2 lines, 162 LCD is called taking everything into account. There are different blends open including, 81, 8 URL, 102, 16 URL, etc., anyway the most regularly used blends are the 16 URL. It will have a whole of 32 characters (16 premises \times 2=32) and each character will contain 5 premises Pixel Dots.

A solderless breadboard got accessible during the 1970s, and it is generally alluded to today by the name "breadboard." There is no compelling reason to weld the solderless breadboard, so it very well may be reused. It makes it simple to use for making impermanent models and playing with circuit structure. Thus, solderless breadboards are normal among understudies just as in innovation instruction. More seasoned kinds of breadboard didn't involve this property.

A. Problem Definition:

Road minor impact take in every way that really matters 1.3 million lives each year and insidiousness an additional 20-50 million people far and wide. Undeniably the measure of road traffic passings remains unsuitably high at 1.24 million dependably, as appeared by the Global Status Report on Road Safety 2013.. Only 28 nations, addressing 7% of the complete masses, have healthy road prosperity rules on five essential risk factors: driving alcoholic, speeding and failure to use cruiser head defenders, seat straps and kid constraints. Thusly, this smart top is being executed to overcome this issue, which helps with decreasing the amount of accidents that happen every day and moreover helps with diminishing the death extent.

Indeed, even nations like India, where cruisers are increasingly normal, a great many people bite the dust because of imprudence brought about by wearing bike protective caps. Despite the fact that there has been constant information on head protectors and safety belts from the administration specialists, numerous riders don't obey them.

A great many people utilize conventional protective caps just to forestall challan from being accomplished for security purposes by traffic control police. Be that as it may, these protective caps don't ensure the driver's well being. Head protector fills in as a straightforward security instrument for bike administrator. In any case, it doesn't guarantee the rider keeps the traffic oversees cautiously or not. Thusly, the splendid top can be used to beat this issue.

B. Problem Statement:

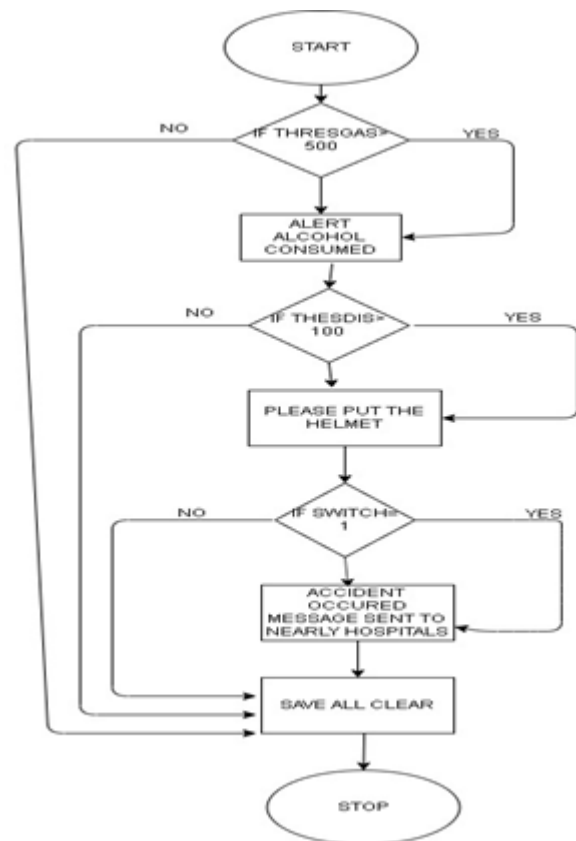
The Smart protective top has two working modules, for example one piece of the gatherer and one piece of the transmitter. The transmitter part is orchestrated in the head protector itself, while in any individual bicycle the beneficiary part can be mounted. As requirements be, there is remote correspondence between two modules. The weight signal is seen by the weight transducer inside the monitored top in the transmitter module.

A comparator changes over direct signs to front line signals and feeds the transmitter duty as a strategy for thinking level 1 while the transducer supplies the yield.

Right when the customer cleanses the top, the transducer yield gets zero and the transmitter input gets 0 as the level of procedure for deduction. In like way, the MQ-3 gas pioneer is utilized to see the rider's breath liquor content. It might be put just underneath the security appearances to cause it key to feel. If the driver is intoxicated, by then the estimation of the check diminishes, understanding an upsetting voltage move. By then this worth is passed to the microcontroller, and right by and by shields the machine from lighting.

A significant level advanced yield is acquired by the yield pin in the collector module until the rider wears the head protector and the bicycle's start unit circuit is finished when the computerized transfer is actuated by this sign. The hand-off opens when the driver removes the head protector and the circle ties are ended. In the event that somebody coincidentally experiences a mishap, at that point it will be distinguished by a vibration finder and the area of that specific spot will be sent through GSM and GPS unit to his family members just as to the close by police headquarters a longitude and scope esteems.

II. FLOW CHART



III. METHODOLOGY

Suffering is the careful, theoretical evaluation of the systems applied to a field of study. It contains the theoretical appraisal of the gathering of structures and measures related with a pinch of information. Traditionally, it consolidates contemplations, for instance, perspective, hypothetical model, stages and quantitative or dynamic frameworks.

A structure doesn't choose to give plans it is right now, proportionate to a system. Or then again maybe, a system offers the hypothetical supporting for understanding which structure, set of strategies,

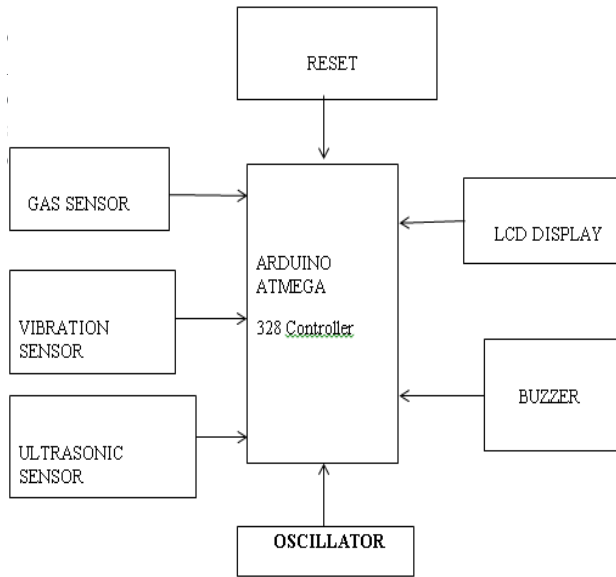


Fig. Block Diagram of Multi Access Helmet.

Beginning at now will check three conditions that are the degree of alcohol, vibration stress go and the thing zone at the ultrasonic sensor. In the fundamental condition by utilizing the gas sensor we will check the riders take in and it will discover the how much liquor the rider took on the off hazard that the liquor level is more than the most silly respect, by then the ringer will not and it won't permit the rider to where head guard and on the off chance that he/she doesn't wear top then the bicycle won't begin. The going with case is ultrasonic sensor it will calculate the division of the article near the head shield if the pile of the thing is more than the most cerebrum blowing valve, by then it will show to wear the top if not the sign will on and the bike won't start. The last case is vibration sensor really in a limited timeframe distribution will ascertain the anomalous run when the bike contacts the ground and as showed up by the wretched run it will see whether the calamity occurred or not . In the event that the scene is occurred, by then using the gsm module the zone of the bike is followed and the degree and the longitude estimations of the bike will be reliably sent to the nearest centers using gps module.

C. Implementation:

The "MULTI ACCESS HELMET" project is best suited for achieving the following goals

- 6.1 STATUS OF RIDER WEARING HELMET
- 6.2 ALCOHOL CONTENT TEST
- 6.3 ACCIDENT DETECTION
- 6.4 ACCIDENT LOCATION

6.1 Status Of Rider Wearing Helmet:

In this module we can use 2 sensor IR and ultrasonic sensor but here we used ultrasonic sensor which is comparatively best sensor . By utilizing ultrasonic sensor it will compute the segment of the thing in the event that the unit of the article is more than the most extreme valve, by then it will show to wear the protective top if not the ringer will on and the bicycle won't begin.

6.2 Alcohol Content Test:

In this module by using the gas sensor we will check the

riders breath and it will calculate the how much alcohol the rider took if the alcohol level is more than the threshold value then the buzzer will nt and it will not allow the rider to where helmet and if he/she doesn't wear helmet then the bike will not start.

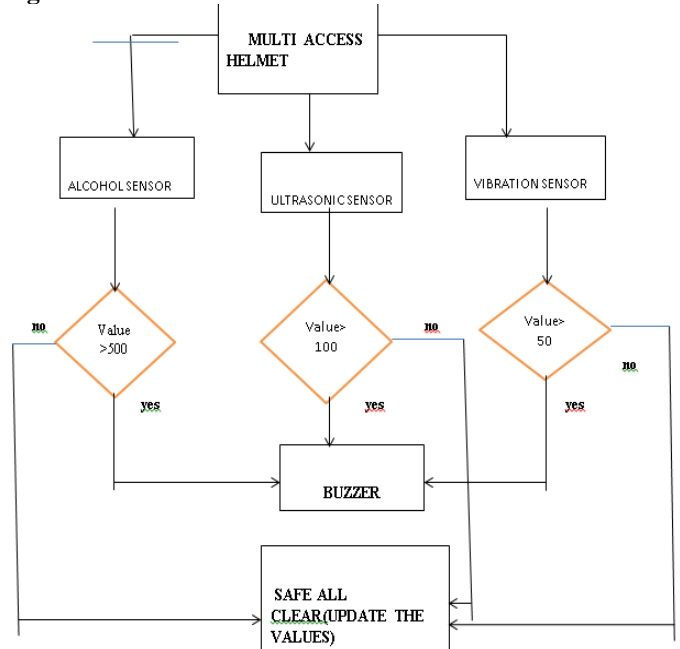
6.3 Detect Accident:

Right presently will check the repeat extent of the vibration sensor reliant on the repeat go when the bike contacts the ground it will distinguish the incident occurred or not.

6.4 Accident Location:

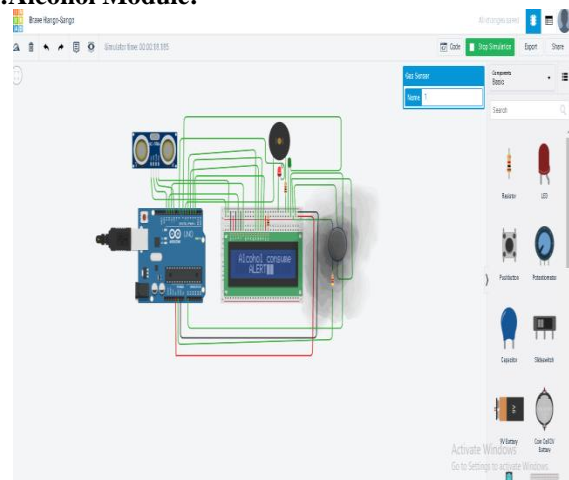
After detecting the accident occurred using gsm module the location will be traced and the latitude and the longitude values of the bike location where the accident occurred will be send to the nearest hospitals.

Algorithm:



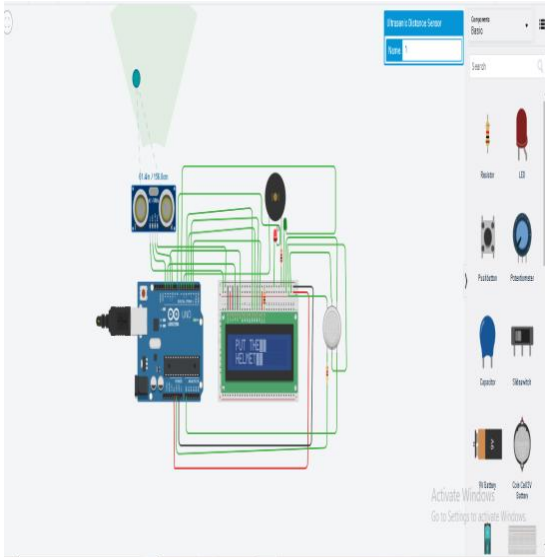
IV. RESULTS AND DISCUSSIONS

7.1:Alcohol Module:



Here if we absorb the above output the gas level is more near to the gas sensor which indicates that the rider take the alcohol so in the lcd display it will display "alcohol consumed alert" and the red led also in on state and buzzer is in on state which indicates the danger sign.

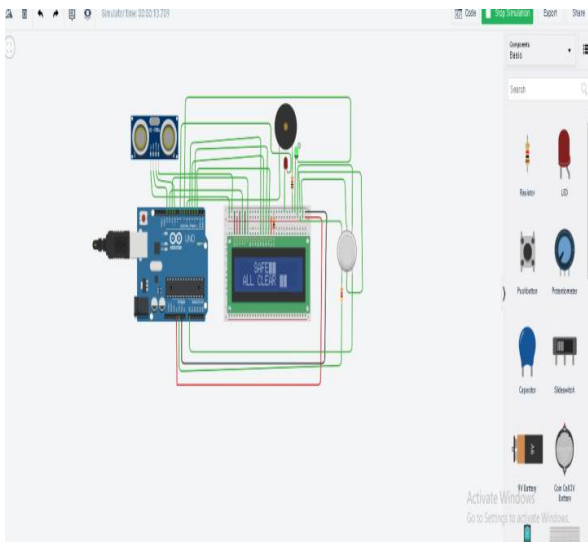
7.2: Start The Bike:



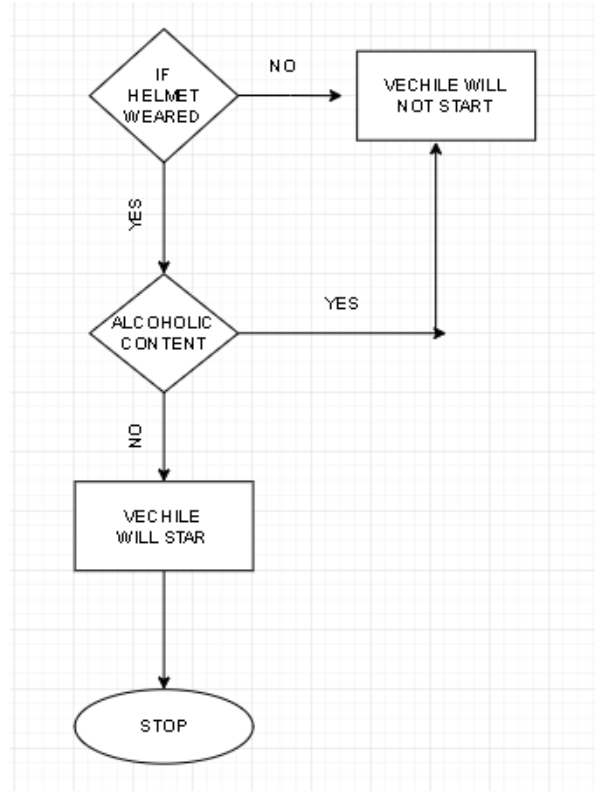
Here that article separation close to the ultrasonic sensor is 156.0cm which implies it is more prominent than 100cm so in the lcd it will show "put the head protector" and the red drive is in on state and ringer is likewise in on express this is additionally one of the peril sign.

7.3: Safe Module:

Right now no gas close to the gas sensor and the item distance likewise under 100cm so in lcd it will show "safe all unmistakable" and the green drive is in on state and ringer is in off state which demonstrate it is in safe state and the bicycle will begin. Many bike area bunch crashes today. Because of the nonattendance of protective cap or the utilization of mixed beverages, the seriousness of these wounds is expanded.

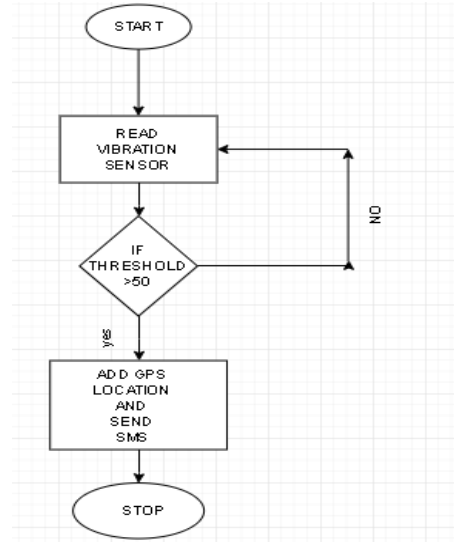


We have an inclination in our task to build up an electronic clever head protector framework that viably controls cap wearing and smashed driving. In presenting this program, a solid 2 wheeler ride is conceivable, which would limit head wounds in all mishaps brought about by the absence of a protective cap and further lessen the pace of mishaps because of inebriated driving. Right now, GSM modem is utilized to make an impression on the predefined numbers customized utilizing a microcontroller in case of a mishap.



7.4: Vibration Sensor Module:

Here the vibration sensor will figure the recurrence scope of the sensor if the frequency goes more prominent than the limit go which implies mishap happened then the area of the vehicle that is scope and the longitude will be sent to the closest medical clinics.



D. Hardware Requirements:

- Buzzer
- Gas sensor
- Ultrasonic sensor
- Vibration sensor
- Gps and gsm modules
- Lcd display
- Arduino uno

E. Software Requirements:

- Arduino IDE

- Windows Operating System
- Embedded c

V. CONCLUSION

We are correct now during the time spent finding a suitable top game-plan. The proposed head defender should be lightweight to oblige all the basic workplaces. Simultaneously, care is taken to pick microcontrollers and sensors. The proposed strategy will offer a response for a wide extent of wary tops additionally as cost talented and changed progression side. The goal is to concentrate on the lighter comprehension of the bicycles bundle and a brief time allotment later bi-cycle customers. With engine start and other basic flourishing points of view, this monetarily shrewd system can be joined. We can supply ensure commonly the security of person who are driving the bike. By appropriately fixing sensible force examinations, this model is relied upon to fit for reasonable mechanical applications.

REFERENCES:

1. "Design of Smart Helmet for Accident Avoidance ",by Jesudoss A, Vybhavi R and Anusha B.
2. " Smart helmet for motorcycles" ,by Huma Afreen ,Jhuita Nandi ,Rohit Kundu ,Ankit Dutta .
3. " Analysis of Smart helmets and Designing an IoT based smart helmet: A cost effective solution for Riders" ,by Divyasudha N, Arulmozhivarman P , Rajkumar E.R .
4. "Smart helmets for automatic control of headlamps", by Muthiah M. ; Aswin Natesh V. ; Sathiendran R.K.
5. "SMART HELMET USING RF AND WSN TECHNOLOGY FOR UNDERGROUND MINES SAFETY" BY SHABINA.S.
6. " IMPLEMENTATION OF ALCOHOL AND COLLISION SENSORS IN A SMART HELMET" BY SHIKHA GUPTA,KASHISH SHARMA,AKSHAY GAJRA.
7. " IMPLEMENTATION OF SMART SAFETY HELMET FOR COAL MINE WORKERS", BY PRANJAL HAZARIKA.
8. " MICROCONTROLLER BASED SMART HELMET USING GSM & GPRS" BY PRASHANTAHUJA,KETAN BHAVSAR.
9. " IOT BASED SMART HELMET SYSTEM WITH DATA LOG SYSTEM", BY MANISH UNIYAL,HIMANSHU RAWAT,MANU SRIVASTAVA,VIVEK KUMAR SRIVASTAVA.
10. " INDICATOR WARNING REFINED FUEL OIL IN A MOTORCYCLE WITH FUZZY LOGIC AND SOUND NAVIGAIOTN THROUGH SMART HELMET" BY ARIF RAHMAN,MAHMAN ,MAMAN ABDUROHMAN,AJI GAUTAMA PUTRADA.
11. " SAFEGUARDING OF MOTORCYCLISTS THROUGH HELMET RECOGNITION" BY G. SASIKALA ,[KIRAN PADOL](#) , [ANIKET A. KATEKAR](#) , [SURENDER DHANASEKARAN](#).
12. " DEVELOPMENT AND APPLICATION OF THE SMART HELMET FOR DISASTER AND SAFETY " BY [MINGI JEONG](#) ,[HYESUN LEE](#) ,[MYUNGNAM BAE](#) ,[DONG-BEOM SHIN](#) ,[SUN-HWA LIM](#) , [KANG BOK LEE](#).
13. " KONNECT: AN INTERNET OF THINGS(IOT) BASED SMART HELMET FOR ACCIDENT DETECTION AND NOTIFICATION" BY [SREENITHY CHANDRAN](#) ,[SNEHA CHANDRASEKAR](#) , N EDNA ELIZABETH.
14. " ACCIDENT AND ALCOHOL DETECTION IN BLUETOOTH ENABLED SMART HELMETS FOR MOTORBIKES" BY [SAYAN TAPADAR](#) ,[SHINJINI RAY](#) ,[HIMADRI NATH SAHA](#) ,[ARNAB KUMAR SAHA](#) , [ROBIN KARLOSE](#).
15. " LOW-POWER LOW-PROFILE MULTIFUNCTION HELMET-MOUNTED SMART ARRAY ANTENNA" BY [J.K. TILLERY](#) , [G.T. THOMPSON](#) , [J.J.H. WANG](#).

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