**ABSTRACT**

In day to day life accidental cases of the four wheeler vehicle is increasing. There are many reasons behind such type of deadly incidences. But main cause behind it is the unawareness of the driver or we can say diversion of the drivers mind at the time of the driving because of the use of the cell phone.

Whenever driver uses his cell phone at the time of driving he engaged his one hand for the holding of cell phone and also his mind gets diverted. Too overcome this type of the problem we are trying to design a new type of the mobile phone holder for the four wheeler on which driver can mount the mobile phone and without taking mobile in hand he can receive the incoming calls.

The main concept in this type of the project is that we only need to place the mobile stand on the steering which is the nearest part of the vehicle to the driver’s face at the time of the driving, so that user can easily receive the call on loudspeaker mode and without lifting the phone one can easily answer to the call.

But along with that there are many problems in designing this type of stand, such as steering wheel is the rotating part and because of this mobile may get collapsed, also charging the mobile in this type of mobile stand is not that much of easy part. So we must consider this type of factors under consideration at the time of the design. So that along with the user’s safety cell phones safety is also achieve.

**CONTENTS**

1. Introduction..…………………………………………………………………4
2. Literature survey……………………………………………………………...6
3. Concept to solve the problem.……………………………………………….12
4. Diagrams……………… ……………………..……………………………..14

4.1 Mobile phoneholderdiagrammade on the pro-engineer

4.2 Mobile phone holder in exploded view

1. Design of the mobile phone holder…………………………………………..16
2. Consideration of new features..………………………………………………18
3. Conclusion ……………………………………………………………………20
4. Further scope of the project……………………………………………………21
5. References……………………………………………………………………..22
6. **INTRODUCTION**

We can see in our surrounding that the accidental cases of the four wheeler vehicle is day by day increasing because use of the mobile at the time of the driving by the driver is day by day increasing. In today’s fast world every second is precious and because of this everyone is looks like in hurry, so most of the timeeveryone forget to carry headphone along with them. And because of this, at the time of receiving the call driver have to receive the call by holding the cellphone in hand. In short at the time of driving along with driver’s mind, his hand also gets involve in another process other than driving. And because of this the driver’s reaction time at the time of the driving is increases. And because of this diverted mind and increase in reaction time chances of causing accident is an increase. And this is the main reason behind increasing number of accidents.

Also most of the time driver forgot to take out mobile from his pocket and to keep it on the dashboard of the vehicle and because of this he carry cellphone as it is at the time of driving. And if in case when he is driving and someone calls on his phone then for receiving purpose he must need to tilt by some angle to pick out his phone out of the pocket and in this process driver may lose his balance and control over the vehicle.

To overcome these types of problems we are planning to design a new type of mobile phone holder on the steering wheel of the vehicle. As we are placing this holder on the steering wheel it has much more advantages.

Steering is the nearest part of the vehicle to the face and also it is exactly in front of the face of the driver, so because of this whenever driver enters in the vehicle he directly see the mobile phone holder on the steering and because of this he never forgot to take out mobile phone from his pocket and along with that because of very nearness of the holder it is easily accessible for the driver also.

But as we are trying to fix the mobile phone holder on the steering wheel we need to consider one more factor under consideration that steering wheel is rotating part and because of this we need to fixed the holder in such a way that mobile phone holder will not rotate along with the steering wheel otherwise mobile phone will fall down. Also we can do more modification in the project like once you put the mobile on the holder, charging of the mobile will get automatically started.

1. **LITERATURE SURVEY**
   1. Cellphones Cited In Car Accident Survey:

Driver inattention is the leading factor in most crashes and near-crashes, according to a landmark research report released today by the National Highway Traffic Safety Administration (NHTSA) and the Virginia Tech Transportation Institute (VTTI). Nearly 80% of crashes and 65% of near-crashes involved some form of driver inattention within three seconds before the event. Primary causes of driver inattention are distracting activities, such as cell phone use, and drowsiness.

The 100-Car Naturalistic Driving Study tracked the behavior of the drivers of 100 vehicles equipped with video and sensor devices for more than one year. During that time, the vehicles were driven nearly 2,000,000 miles, yielding 42,300 hours of data. The 241 drivers of the vehicles were involved in 82 crashes, 761 near crashes, and 8,295 critical incidents.

The huge database developed through this breakthrough study is enormously valuable in helping us to understand.

2.2 car-accident.com survey:

Several studies show cell phones are a leading cause of car crashes. It is estimated that cell phone distracted drivers are four times more likely to be in a car wreck. According to a Harvard University study, cell phones cause over 200 deaths and half a million injuries each year.

* 1. livescience.com survey :

A new study confirms that the reaction time of cell phone users slows dramatically, increasing the risk of accidents and tying up traffic in general, and when young adults use cell phones while driving, they're as bad as sleepy septuagenarians.

"If you put a 20-year-old driver behind the wheel with a cell phone, their reaction times are the same as a 70-year-old driver who is not using a cell phone," said University of Utah psychology professor David Strayer. "It's like instantly aging a large number of drivers."

Traffic jams and death:

Cell phone distraction causes 2,600 deaths and 330,000 injuries in the United States every year, according to the journal's publisher, the Human Factors and Ergonomics Society.

Are Cell Phones Really So Dangerous?

Drivers talking on cell phones were 18 percent slower to react to brake lights, the new study found. In a minor bright note, they also kept a 12 percent greater following distance. But they also took 17 percent longer to regain the speed they lost when they braked. That frustrates everyone.

"Once drivers on cell phones hit the brakes, it takes them longer to get back into the normal flow of traffic," Strayer said. "The net result is they are impeding the overall flow of traffic."

Strayer and his colleagues have been down this road before. In 2001, they found that even hands-free cell phone use distracted drivers. In 2003 they revealed a reason: Drivers look but don't see, because they're distracted by the conversation. The scientists also found previously that chatty motorists are less adept than drunken drivers with blood alcohol levels exceeding 0.08.

Separate research last year at University of Illinois at Urbana-Champaign supported the conclusion that hands-free cell phone use causes driver distraction.

"Both young adults and older adults tended to show deficits in performance. They made more errors in detecting important changes and they took longer to react to the changes." Arthur Kramer, who led the Illinois study

The impaired reactions involved seconds, not just fractions of a second, so stopping distances increased by car-lengths.

Older drivers more cautious:

The latest study used high-tech simulators. It included people aged 18 to 25 and another group aged 65 to 74. Elderly drivers were slower to react when talking on the phone, too.

The simulations uncovered a twofold increase in the number of rear-end collisions by drivers using cell phones.Older drivers seem to be more cautious overall, however.

"Older drivers were slightly less likely to get into accidents than younger drivers," Strayer said. "They tend to have a greater following distance. Their reactions are impaired, but they are driving so cautiously they were less likely to smash into somebody." But in real life, he added, older drivers are significantly more likely to be rear-ended because of their slow speed.

Other studies in the journal found:

\* Telephone numbers presented by automated voice systems compete for drivers' attention to a far greater extent than when the driver sees the same information presented on a display.

\* Interruptions to driving, such as answering a call, are likely to be more dangerous if they occur during maneuvers like merging to exit a freeway.

\* Things could get worse. Wireless Internet, speech recognition systems and e-mail could all be even more distracting.

Several readers wrote to LiveScience questioning whether cell phones were really so bad for drivers. Here is some additional information that helps illuminate the death statistic.

The estimates of annual deaths reported in this week's article (2,600) may well be low. The number, for U.S. deaths related to drivers using cell phones, comes from a 2002 study by the Harvard Center for Risk Analysis (HCRA). Researchers then estimated that the use of cell phones by drivers caused approximately 2,600 deaths.

Importantly, the researchers noted (in 2002) that increasing cell phone use could be expected to cause the annual death estimate to rise. The 2002 estimate, for example, was up from an estimate of 1,000 deaths in the year 2000. Logic suggests the number -- though just an estimate -- could be much higher in 2005.

The estimates are based largely on mathematical models, but they are not without basis. In 2001 in California, for example, "at least 4,699 reported accidents were blamed on drivers using cell phones, and those crashes killed 31 people and injured 2,786," according to an analysis by The Los Angeles Times. That number can expected to be low, because of the lack of formal procedures for noting cell phone use as a cause of a traffic accident.

The Times also noted a 1997 study of Canadian drivers "who agreed to have their cell phone records scrutinized found that the risk of an accident was four times greater while a driver was using the phone."Each year, about 42,000 people die in U.S. auto accidents.

Here is how the new University of Utah simulations were conducted:

Participants in the simulator used dashboard instruments, steering wheel and brake and gas pedals from a Ford Crown Victoria sedan, surrounded by three screens showing freeway scenes and traffic, including a "pace car" that intermittently hit its brakes 32 times as it appeared to drive in front of study participants.

If a participant failed to hit their own brakes, they eventually would rear-end the pace car. Each participant drove four simulated 10-mile freeway trips lasting about 10 minutes each, talking on a cell phone with a research assistant during half the trips and driving without talking the other half. Only hands-free phones were used to eliminate any possible distraction from manipulating a hand-held cell phone.

Thirty times each second, the simulator measured the participants' driving speed, following distance and - if applicable - how long it took them to hit the brakes and how long it took them to regain speed.

* 1. Cellphonesalesman survey:-

When I did survey by visiting actual mobile Shoppe then different types of complains and a demand of the shop owner arrives. Many of them are requesting company to provide the new type of mobile stand because latest design of mobile holder in the market also does not satisfy the customer’s needs. Many of the customers are demanding the new type of mobile phone holder for the vehicle in which any type of mobile fitted properly and along with that charging of the mobile also get started automatically. Also customer demanding a new phone holder on which owner can receive a phone without holding it in the hand.

1. **CONCEPT TO SOLVE THE PROBLEM**

As it is clearly seen from the survey that new mobile phone holderdesign is very recommended field of research. In order to solve many problems associated with the customer’s demand.

So to overcome all the problems, we are proposing to develop new type of the mobile phone holder which is mounted on the steering in the automobile.

As this is mounted on the steering it is very useful for the user, because user can easily receive the call and along with that by only shifting that call on the loudspeaker mode one can easily talk on the phone without holding it in the hand. And because of this both hands of the user are free for normal driving.

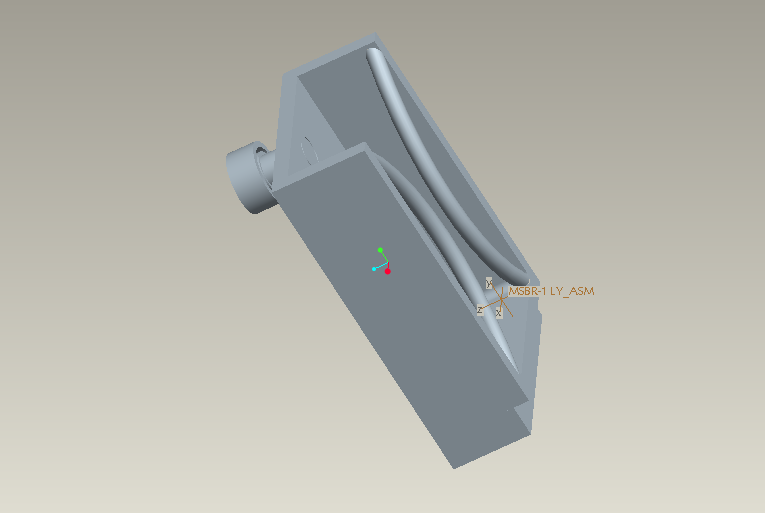
This concept also overcomes the drawback of the normal mode of the mobile as well as drawback of the headphone. In normal mode there are many drawbacks at the time of driving like it engages our one hand. And along with that it partially diverts the mind of the driver. Similarly, if we use head phone then most of the time user unable to see the incoming call window, it means many of the time when user uses the headphone, he kept his mobile either in the pocket or on the mobile phone holder which is mounting on the dashboard. Also when user uses the headphone, his almost ¾ of mind gets diverted so because of this chances of the accidents increases.

Along with that as we are suggesting to mount this mobile phone holder on the steering wheel, whenever driver enters in the vehicle his attention gets seek towards that mobile phone holder and because of that before starting the vehicle he placed the mobile phone in the mobile phone holder. And this is also overcome the drawback of the mobile phone holder which is placed on the dashboard or on the any other part of the vehicle.

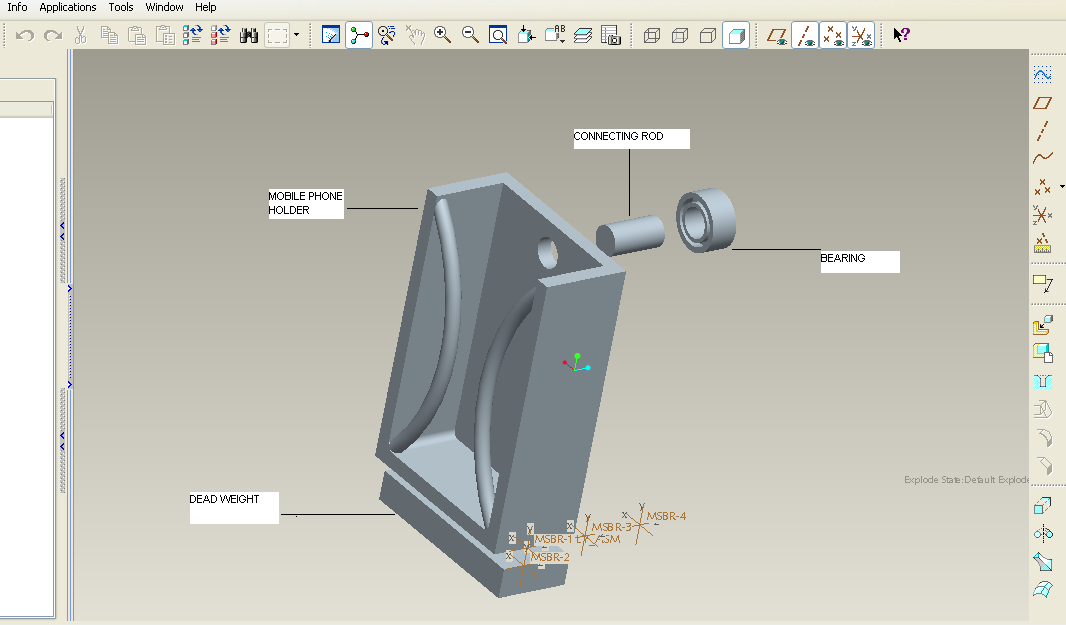
But at the time of designing this type of mobile phone holder there are certain limitations like steering wheel is the rotating part, and if we simply stick or join the mobile phone holder on the steering then along with steering wheel this phone holder also rotates and this may leads to drop out of the mobile which is inside the holder. Also charging of the mobile inside the mobile phone holder is also seems to be a challenging part of the design.

**4. DIAGRAMS**

**4.1 MOBILE PHONE HOLDER DIGRAM MADE ON THE PRO-ENGINEER**



**4.2 MOBILE PHONE HOLDER IN EXPLODED VIEW**



1. **DESIGN OF THE MOBILE PHONE HOLDER**

In the design of this type of the phone holder we are taking one bearing and we will going to fixed phone holder along with that bearing. The main concept is explain in the diagram



In the above figure the circular shape at the end of the phone holder is the bearing cover below which we will be going to place the bearing after that the connecting rod as shown in the figure is fitted in the bearing below that bearing cover. After that it has to be fixed at the outer race of the bearing on the steering wheel.

The main concept of using the bearing is that whenever wheel rotates at the same time holder should not rotate and for achieving this purpose we must need to stabilize the inner race of the bearing. Now to stabilize the inner race, there is no such type of fixed support which can be used for stabilizing purposeso to overcome this we are attaching the other end of the connecting rod at the top portion of the holder and along with that we will going to attached the dead weight of around 100gm at the bottom of the phone holder. Whenever we join the connecting rod at the top part of the vehicle, the CG of the phone holder is comes below the connecting rod. And because of this whole weight of the holder is resisting to the rotation of the rod. But if we give any jerk to the steering then it may possible that phone holder will get rotate so to overcome this drawback we are joining dead weight at the end of the phone holder this extra attached dead weight also works through the CG of the mobile phone holder and it results in more holding force for the inner race of the bearing.

Ultimately by doing this type of arrangement stabilization of the inner race of the bearing is also possible. And by doing this type of assembly rotation of the phone holder can be stopped completely.

It may possible that because of this type of assembly phone holder performs S.H.M of very small amplitude. But it will not have that much of force which can rotate the mobile phone holder completely.

1. **CONSIDERATION OF NEW FEATURES**
2. We can provide hinge in between the connecting rod so that according to convenience we can turn the mobile phone holder for better visual performance.



But as we see the space available at the steering is very small so we can not do this type of arrangement in this short space.

1. We can use the telescopic arrangement in the connecting rod for better utilization of the mike.



But this type of arrangement may cause injury to the user so we cannot do such type of arrangement also.

1. **CONCLUSION**

Present scenario of all automobile industries is to concentrate on safety of the passenger and to make them more comfortable for driving. Most of the accidents today occur mainly because of the use of the mobile at the time of driving. This mobile phone holder gives the assurance of the safe driving. As because we made it in such a way that there is no need of holding a phone in a hand at the time of driving.

Along with that at the time of talking, mobile is always at some distance from thedriver so because of this the damage to the brain cells because of the radiations can be avoided. And this is one more very important safety feature of this type of design.

But this type of design may leads to the privacy problem of the user. Along with that if we see the safety aspects; at the time of accident then this type of mobile phone holder may causes the injury to the user.Cars having the air bag facility may not permit this type of the holder assembly to mount on the steering. so by considering all the limitations we can say that further modification is vital in this design. And this new design will be very helpful for saving many more life.

1. **FURTHER SCOPE OF THE PROJECT**
2. In this type of the projects we haven’t provided any sort of the charging facility.
3. Also it may possible that phone don’t have that much of high volume for loud speaker. So to overcome this, one can made arrangement so we can use the speaker provided in the vehicle, in order to enhance the volume quality.
4. The complete new design of the phone holder for the outer race of the steering can be possible.
5. **REFERANCES**
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10. Design of machine element by V.B.Bhandari