A Study on Devices which Prevent Road Accidents

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ABSTRACT

India has a population of 1,392,700,250 people and traffic is a big issue. When population and traffic are big issues, it would be wrong to say road accidents are very common in India. Road accidents have now earned India a dubious honour: with nearly 140,000 deaths a year, the country has overtaken China at the top of global road fatalities. India is the only country in the world where more than 15 people are killed and 53 injured every hour due to road accidents. Protego is such a device that can save many lives. Looking at the current scenario accidents and rape are concerned issues excluding corona. Especially in India, the cases are getting more because of the unfinished roads and no proper communication or proper info for the respected departments to help the victims.

KEYWORDS

Protego

tracking device

safety

public services

INTRODUCTION

Background of the study

Protego is such a device that can save many lives. Looking at the current scenario accidents and rape are concerned issues excluding corona. Especially in India, the cases are getting more because of the unfinished roads and no proper communication or proper info for the respected departments to help the victims.

The study of Protego has its roots in the fields of tracking and robotics. Researchers have been able to create more sophisticated and efficient navigation systems for Protego thanks to the advancement of machine learning techniques.

Protego research has also focused on improving their performance, such as tracking, battery life, and calling systems. Researchers are always looking for ways to improve these aspects of the Protego to create more efficient and effective tracking and calling devices for Protego.

Research Questions

How can the design of the Protego device be improved?

How can the navigation be improved to pinpoint the exact location of the user?

What are the limitation and challenges of Protego and how can they be solved in the future?

Need for the study

In India, the vehicle population is growing at a faster rate than the economic and population growth. The surge in automation coupled with the extension of the road network has brought with it the challenge of addressing severe factors such as the increase in road accidents.



Number of road accidents (in%)

Top 5 states

Number of road accidents (in%)							
Top 5 states	2008	2009	2010	2011			
Tamil Nadu	12.5	12.5	13.0	13.2			
Madhya Pradesh	9.0	9.7	10.0	9.9			
Karnataka	9.5	9,3	9.3	9.0			
Andre Pradesh	8.8	8.9	8.9	8,9			
Maharashtra	15.6	14.3	14.3	42.7			

Number of people killed in road accidents (in%)							
Top 5 states	2008	2009	2010	2011			
Uttar Pradesh	11,0	11.6	11.3	15.2			
Tamil Nadu	10.7	10.9	11.5	10.8			
Andre Pradesh	11.5	11.8	9.3	9.0			
Maharashtra	8.8	8.9	8.9	8,9			
Rajasthan	15.6	14.3	14.3	42.7			

Problem Statement

Protego is universally the best idea but the big issue is the technology and tie-up with the government.

Protego should have advanced technology because many companies like apple have tried and failed in the

task.

There is no such company that doesn't face a problem when they make a product. Here we also got plenty

of problems to startup this device.

1. We just got the digital idea and the 3D model of the product we don't have the proper technology to

launch this device.

2. We need collaboration with the government and all the private hospitals for them to agree with this device

3. Here we have a problem that will only happen in a few cases that are if the car is severely damaged and

the GPS tracker itself gets damaged at the initial stage it won't send any message to the police station and

the hospitals.

When the project objective is to send the location to the emergency services there should be a collaboration

between the government and the company. And the right technology and in-depth study of the device or

the application can save a thousand lives and make this world more beautiful and safer.

REVIEW OF LITERATURE

Literature Review

Protego uses new and unique technology in the scenario. The Protego device receives a trigger from the

Air Bags and receives the Gasp location of the car and sends them to the nearest police station or the

hospital. In case of the Gaps don't work in some areas the device sends the previse the nearest location to

the emergency services.



In the case of the Protego Application (in watches), the woman who is wearing should Scan her fingerprint at the first and in case of emergency if she uses the scanner her finger twice (to restrict mistakes) the application uses the location from the watch and send the location to the nearest police station.

So here people might come saying that Apple has already launched such a device that helps to send a message, but apple has this feature only for apple communications and sends a message to only the family members of the injured person. The difference between our application and apple's application is that this device sends a message for emergency uses not to family members. So, I was confused about this question as well how did all their family members know then? So, what happens here is that the particular hospital or police station will however contact the family members. Here we are benefitted with emergency uses too! When you are wearing your watch and Apple Watch Series 4 or later detects a heavy fall, it taps you on the wrist, sounds an alert, and displays a message. Pressing the Digital Crown, hitting Close in the upper left corner, or selecting "I'm Alright" will allow you to choose whether to alert emergency personnel or stop the alarm.

The Apple Watch SE or Apple Watch Series 4 or later can link you to emergency services and send a message to your emergency contacts if fall detection is activated and it detects a serious fall. The Apple Watch will tap your wrist, sound a warning, and then try to notify emergency services if it senses a major fall and you haven't moved for around a minute. Fall detection is automatically turned on if the date of birth you specify when configuring your Apple Watch (or add to the Health app on your iPhone) indicates that you are 55 or older. Your Apple Watch won't immediately call for help if it notices you're moving; instead, it will wait for you to respond to the alarm. Your watch will automatically place the call if it notices that you haven't moved for around a minute. When the call is over, your watch notifies your emergency contacts of your location and lets them know that it detected a heavy fall and called for help. Your Medical ID provides your watch with your emergency contacts.



There are various emergency service phone numbers in some nations and regions. In these nations, Apple

Watch will dial the ambulance service's telephone number.

A heart sensor app that can take an ECG in real-time is another fantastic feature of the Apple Watch Series

4, 5, 6, and 7. This is the first device with that capability that is sold directly to consumers. It also keeps an

eye out for any abnormalities in the heart. The watch stores the biometric information it collects, which can

then be delivered straight to your healthcare physician. Because of its substantially larger display and 50%

louder speaker than earlier models, the new Series 7 is also user-friendly for seniors.

The Apple Watch makes a great medical alert device because it has outstanding fall detection. Even if it

wasn't intended to be a medical alert system and can't compete with products like Medical Guardian or

Great Call as an all-purpose medical alert system, it should nevertheless be given credit for developing a

popular choice for wearable medical devices.

Apple's fall alert system is activated by motion sensors in its smartwatch which quickly connect you to

emergency services if you have a sharp slip and become immobile.

Being a smartwatch, Apple's medical alert system is naturally mobile. Historically, medical alert systems

for seniors with fall detection were domestic-only devices. They provided indoor protection but didn't work

outside the home.

With the arrival of more modern medical alert devices and dynamic wearable tech, protection is now

conveniently available anywhere, straight from your wrist.

When the smartwatch detects a loss of balance followed by a significant drop, Apple advises that it "taps



you on the wrist, sounds an alarm, and displays an alert." You can then dismiss this alert and tell the Health App you're ok or contact emergency services.

The Apple heart monitor will give you an alert if it detects an irregular heartbeat or worryingly high or low heart rate., communicate medical emergencies instantly or automate health reminders.

Summary of Review

According to the literature on automatic vacuum cleaners, research in this field is primarily focused on improving these devices' efficiency, performance, and usability. Studies have proposed new methods to create more accurate tracking of the users, which has piqued the interest of researchers. The suction power of automatic vacuum cleaners has also been investigated, with research examining the efficacy of various navigation technologies for tracking users, heart rate, and fall detection. Battery life has also been studied, with studies looking into the effects of battery capacity.

Overall, the literature review suggests that ongoing research in the field of tracking devices which calls social service is aimed at enhancing the functionality, performance, and sustainability of these devices.

Research Gap

Protego is such a device that can save many lives. Looking at the current scenario accidents and rape are concerned issues excluding corona. Especially in India, the cases are getting more because of the unfinished roads and no proper communication or proper info for the respected departments to help the victims.

Looking at the current market, Protego has a huge opportunity to be successful and can create a new history in the technological industry.



Locking on many researchers we know Apple has a trigging alert message sent to the emergency contact (family, friends not the govt services) in case of an emergency (if you fall). But protégé is such a device

that can directly send the location to the emergency movement services.

A GSM modem is a specialized type of modem that accepts a SIM card and operates over a subscription to a mobile operator just like a mobile phone.

In both GPS tracking and GSM tracking, a receiver collects data from at least 4 satellites to determine the exact location. GPS GSM Tracking devices perform this task by retrieving information from the cell tower

closest to the GSM / GPS tracking device. Between the two technologies, the GPS systems are able to

determine the position with an accuracy of one metre, while GSM tracking technology can only determine

the position with an accuracy of 10 metres.

In today's market, GSM / GPS tracking technology is widely used in cars with GSM vehicle tracking, in mobile phones, watches and in any other item that you want to track. With devices almost as small as a matchbox, placing a GPS / GSM tracker is now easier than ever.

So, the Market GAP and the Research GAP will be an advantage for the company.

RESEARCH METHODOLOGY

Research Objectives

The main objective of the project is to provide immediate safety for women if they are in danger. Protego device can be installed in any vehicle easily which has GPS in it, and at the time of danger when the airbags of the car open the GPS locates the signal and sends the location to the nearest police station and the hospital. Once the police station receives the location of the individual they can go and rescue the victims



from danger. Protego software can also be installed in watches so that it can be easily accessible, by just scanning your fingerprint twice it sends the location to the nearby police station and hospital. So, this can

reduce the number of assault cases and road accidents and can help the victims and the government to find

the location easily.

Hypothesis

Population: The use of renewable energy sources, as well as more energy-efficient components and

systems, can lead to the development of a more environmentally friendly and long-lasting Protego.

Effective maintenance and repair programmes, as well as the use of high-quality components and materials,

can improve long-term performance and durability.

The application of artificial intelligence and machine learning techniques to Protego can result in improved

performance and functionality.

By addressing economic factors such as affordability and accessibility, as well as developing effective

marketing and distribution strategies, the adoption and use of Protego can be increased.

Research Approach

The research strategy for an automatic vacuum cleaner study would be determined by the research

objectives, research questions, and available resources. The following are some possible research

approaches:

The experimental approach entails conducting controlled experiments to test hypotheses about Protego. For

example, an experiment could be designed to compare the tracking efficiency, energy consumption, and

user satisfaction of various models of Protego.



The survey approach entails administering surveys to gather data on user needs, preferences, and satisfaction with automatic vacuum cleaners. Depending on the target population, surveys could be

An approach based on field observations: This method involves observing the use of the Protego in real-world settings such as cars, watches, and social public services. Field observations may reveal how these devices are used, as well as the challenges and limitations of their use.

The research approach chosen would be determined by the research objectives, research questions, available resources, and the strengths and limitations of each approach.

Population

administered online, by mail, or in person.

The population for the Protego study would be determined by the research objectives and research questions. The following are some potential populations to consider:

Car Owners: The population may include car owners that installed Protego in their cars or are considering doing so. This population could be further subdivided based on factors like income, age, and household size.

Car Manufacturers and retailers: The population could include car manufacturers and retailers who can preinstall Protego in their cars or the retailer could buy and sell Protego. This population could be further subdivided based on the company's size, the products offered, and the target market.

Experts and researchers: Experts and researchers who have studied Protego or related technologies like navigation, and tracking could make up the population. This group could be further subdivided based on their area of expertise, research focus, and geographical location.

Sample Size

The appropriate sample size for a research study on Protego would be determined by several factors, including the research objectives, research design, statistical power, and desired level of precision.

A sample size of 5-15 units may be appropriate if the research study aims to investigate the performance of a specific type or brand of Protego devices. This would provide a large enough sample size to identify patterns and trends in the data.

A larger sample size may be required to ensure statistical power if the research study aims to investigate the impact of Protego on the effectiveness of tracking and calling public services. Such a study could benefit from a sample size of 250-300 car owners.

The statistical methods used to analyse the data may also influence the sample size. If the study includes regression analysis, for example, a larger sample size may be required to detect small effect sizes.

Location of Study

The study's location on Protego would be determined by the research objectives, research questions, and population under study. Here are some potential locations to think about:

Urban areas: Research could be conducted in urban areas with a high concentration of car owners that use Protego. Major cities or metropolitan areas may be included.

Rural areas: Research into the adoption and use of Protego in rural areas could be conducted but very few will be using this device. Small towns, villages, and remote areas may fall into this category.

Real-world studies would be conducted in real-world settings such as car owners, and car manufacturers to observe the use of Protego in naturalistic environments and collect data on user behaviour, needs, and functionality.



The location would be chosen based on the research objectives and research questions, as well as its accessibility and feasibility. It is critical to ensure that the location is representative of the population under study for the findings to be generalizable.

Data Collection Method

The data collection method for a Protego study would be determined by the research objectives, research questions, and research approach was chosen. Here are some examples of possible data collection methods: Field observations: Field observations could be used to collect qualitative data on how Protego devices are used in real-world settings, as well as the difficulties and limitations associated with their use. Observations could be carried out in person or using video cameras or through data transmitted by the device.

Experiments: Controlled experiments could be carried out to collect quantitative data on the tracking efficiency, energy consumption, and calling service of the Protego device.

Surveys: Surveys could be used to collect quantitative data on Protego user needs, preferences, and satisfaction. Depending on the target population, surveys could be administered online, by mail, or in person.

The method of data collection chosen would be determined by the research objectives, research questions, and the advantages and disadvantages of each method.

Data Analysis technique

The technique used to analyse data would be determined by the research objectives, research questions, and the strengths and limitations of each technique. It is critical to ensure that the data analysis technique selected is appropriate for the research approach and type of data collected and that the results are valid and reliable.



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Descriptive analysis: The descriptive method of analysis is the starting point for any analytical consideration and aims to answer the question of what happened. This is done by organising, manipulating and interpreting raw data from various sources to turn it into valuable insights for your business. Exploratory analysis: As the name suggests, the main aim of exploratory analysis is to explore. Before that, there is no idea of the relationship between the data and the variables. Once the data is explored, exploratory analysis helps you find relationships and develop hypotheses and solutions to specific problems. A typical

application area for this is data mining.

Data Analysis

The world is a market for the device when we look at the demographic or the geography of the target market section, we see every single person in the world is a customs because nobody can predict what is going to happen. So Protego will always be the best techno that will change the world forever.

We asked people (101) that-

1. Do you agree that most of the death from accidents are caused due to No proper emergency facilities (ambulance, police)?

81.2% of the people who understood our idea of innovation have agreed that most of the deaths can be reduced by this device.

2. Do you agree that most Assault cases happen due to No proper emergency facilities (ambulance, police)?

78.2% of the people have agreed that our device can help in reducing the number of Assault cases.

Number of people who agreed to our ideology-

https://docs.google.com/forms/d/1IU9J4VN8iths8eR-

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Findings

Protego is universally the best idea but the big issue is the technology and tie-up with the government. Protego should have advanced technology because many companies like apple have tried and failed in the task.

There is no such company that doesn't face a problem when they make a product. Here we also got plenty of problems to startup this device.

- 1. We just got the digital idea and the 3D model of the product we don't have the proper technology to launch this device.
- We need collaboration with the government and all the private hospitals for them to agree with this device
- 3. Here we have a problem that will only happen in a few cases that are if the car is severely damaged and the GPS tracker itself gets damaged at the initial stage it won't send any message to the police station and the hospitals.

When the project objective is to send the location to the emergency services there should be a collaboration between the government and the company. And the right technology and in-depth study of the device or the application can save a thousand lives and make this world more beautiful and safer.

Implications of Research

Here are some of the research's potential implications:

Product design improvements: The study may provide insights into user preferences and behaviours that can be used to improve the design of Protego. This may result in the creation of more user-friendly and efficient products.

Marketing strategies: The study could illuminate the factors that influence the adoption of Protego.

Companies could use this to develop effective marketing strategies and increase sales.



Cost-benefit analysis: The study may make clear the cost-benefit of using automatic vacuum cleaners versus traditional vacuum cleaners. This could be beneficial to customers when making purchasing decisions.

The study could reveal the environmental impact of Protego in terms of energy consumption. This could help policymakers and stakeholders develop long-term solutions.

Limitations of Research

Sample size: The type of research question under investigation dictates how many units of analysis will be used in the study. It will be challenging to identify important links in the data if the sample is too small, as statistical tests typically call for a higher sample size to assure fair representation, which can be constricting. Lack of reliable or available data: This will undoubtedly force you to restrict the scope of your study or the size of your sample. It can also be a major obstacle to finding a pattern and a pertinent relationship.

Sampling bias: Because of their cultural perspectives on the events they observe, researchers may have biased perceptions, which can undermine the validity of a study. Researchers may also be biased towards facts and findings that only confirm their hypotheses. Time restraints: Real-world issues may reduce the amount of time available to explore a research question and track change. If time constraints have a negative impact on your research, you should express the need for additional research to address this impact.

Further Scope of Research

There are several potential research areas for Protego. Here are some examples:

Long-term efficiency: A study could be conducted to assess the long-term efficiency of Protego. This could entail tracking the system of the device over months or years and comparing it to competitors in the market. Environmental impact: An investigation into the environmental impact of Protego could be conducted. This could include looking into things like energy consumption, waste generation, and carbon emissions.



Economic impact: A study could be conducted to assess the economic impact of Protego on the safety-providing industry, including potential employment and productivity impacts.

Social Impact: A study could be conducted to assess the economic impact of Protego on the safety-providing industry, which will show how it helped the users of Protego from natural disasters, theft, etc.

Conclusion

Protego is the future of the safest which can save you from death and assault and can create fear among rapists around the world. Everything has its pros and cons. Looking at the pros Protego will be a success if only the cons are revised and applied in the technology with changes in technology the device and the application will have the best they can. India is considered unsafe for women and road accidents have been always an issue the communication gap between the victims and the emergency services was always an excuse for the government. Protego will be a great innovation of mankind where people especially women feel safe. Protego is not for business but for the welfare of mankind. As the testing and collaboration with the government is an unfinished task the pricing and the business model are yet to be made.

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