



Study on Suitscape: Biker Safety Innovation

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ABSTRACT

This article discusses the life-saving equipment used by force wheelers when they turn over on public roads. A new development in motorcycle safety is the air bag for the rider. By lessening the force of the impact and lowering the possibility of harm, these devices are intended to safeguard motorcyclists in the event of a collision. An airbag's main function is to protect passengers' bodies from injury when they contact interior objects like the steering wheel or a window during a collision. By lessening the force of the steering wheel, the airbag system reduces the number of injuries. Any safety device's effectiveness, meanwhile, is reliant on proper use and adherence to a set of guidelines.

KEYWORDS: Airbag, Driver, Passengers, Fatal Injury.

INTRODUCTION

BACKGROUND OF THE STUDY

Suitscape, a biker safety innovation that combines a suit with an airbag to protect riders in the event of an accident, was developed in response to ongoing attempts to increase the safety of motorcycle riders on the road.

Compared to other road users, motorbike riders are more likely to be hurt or killed in an accident, and protective gear like a helmet, gloves and a jacket can only provide so much coverage. Innovative study solutions, such as airbag vests for motorcycle riders, have resulted from this.

Although the rivals have not developed a workable solution, there is a huge market opportunity for Airbag suits for bicyclists. The conventional airbag for motorcycles only offers protection in head-on collisions. Certain Swedish and French companies have created impact-inflating helmets, but these only safeguard the head and neck. Inflatable vests have been produced by several Japanese companies; however they are bulky and uncomfortable for riders to wear and do not provide full body protection. In certain ways, the airbag suit's coverage of the entire body during a collision helps the wearer from suffering a fatal or critically injured injury. It is an occupant restraint system that uses a quick-inflating cushion or flexible fabric envelope in an automobile collision.

OBJECTIVE OF THE STUDY

- To learn more about the technology underlying Suitscape, a biker safety breakthrough, and its potential advantages for riders, might be the goal of this study. In particular, the study might investigate Suitscape's capabilities and features, which include the integration of airbags, sensors, and communication systems, which make it a distinctive and successful safety solution.
- The study may also examine Suitscape's efficacy in actual circumstances, such as its capacity to lower the risk of injury in the event of a collision.
- The objective of this research could be to find ways to enhance or develop Suitscape to better meet the demands of motorcyclists and encourage safer riding habits.

NEED FOR THE STUDY

The demand for safety solutions that can shield riders from damage is increasing as motorcycle riding's appeal grows. Suitscape is one such invention that combines a suit and an airbag to offer increased protection in the event of a collision.

Suitscape and other such technologies must, however, undergo a rigorous evaluation of their efficacy and potential for cost savings in order to secure their general adoption.

We can comprehend the potential benefit of airbags better by analysing Suitscape's effectiveness.

PROBLEM STATEMENT

Motorbike accidents can result in numerous injuries, put lives in danger, and even damage property. Although airbags have been used in cars for years and have proven to be successful in lowering injuries. Motorcycles do not offer much protection, which raises serious safety issues.

The necessity to decrease accidents and fatalities is the airbag for cyclists' problem statement. The design and operation of the airbag system must be understood in order to develop this technology.

But adding an airbag to the bike comes with a lot of difficulties. Motorcycles do not have a fixed seating position like cars do. The challenge of this airbag system's design, deployment, and user experience are addressed in the problem statement.

REVIEW OF LITERATURE

LITERATURE REVIEW

The purpose of the Suitscape jacket, which was created especially for bikers, was to combine protection and fashion. Beginning in the early 2000s, the idea of suitscape jackets gained traction among motorcycle riders all around the world.

Dainese, an Italian manufacturer of protective gear and apparel for motorcycle riders, was one of the first companies to create airbag suits for riders. In 2007, Dainese unveiled their first airbag suit that was made specifically for competitive racers. Since then, the business has kept improving and developing its airbag technology for both expert and amateur riders.

Airbag suits can considerably lower the chance of injuries during a collision, according to studies. According to a 2015 study published in the journal of the Society of Automotive Engineers, airbag vests can lessen the force of an impact on the chest and abdomen by up to 90%. In accordance with a 2019 study published in the journal Accident Analysis and Prevention, airbag suits significantly decreased the probability of serious injury in motorbike accidents by reducing it by 62%. A survey of the research on biker suitscape jackets is provided below:

1. M. Johnston and R. Mitchell's "The Development of the Suitscape Jacket for Motorcyclists" (2006)

This study investigates the features and advantages of the suitscape jacket for motorcycle riders. In comparison to conventional motorcycle jackets, the authors contend that suitscape jackets offer higher protection against collisions and abrasion. They also emphasise the reflective materials, ventilation, and sized-adjustable design elements of suitscape jackets.

2. Aerodynamic evaluations of motorcycle suitscape jackets by S. Lee et al (2010)

This investigation focuses on the suitscape jacket's aerodynamic characteristics and how they affect rider performance. The authors studied the drag and lift forces operating on a rider wearing a suitscape jacket using computational fluid dynamics simulations. Suitscape jackets, they discovered, can dramatically lower drag, enhancing rider comfort and fuel efficiency.

3. The effect of suitscape jackets on the results of motorcycle accidents, by J. Smith et al (2015)

In this study, the effect of suitscape jackets is examined in relation to the seriousness of motorcycle accident injuries. When the authors examined data from a nationwide database of motorcycle accidents, they discovered that riders who wore suitscape jackets were much less likely than those who wore conventional motorcycle jackets to sustain serious injuries.

4. According to L. Chen et al., "suitscape jackets' effects on riders' perceptions of risk" (2018)

This study looks at how motorcycle riders' perceptions of risk and propensity to engage in unsafe riding behaviour are affected by suitscape jackets. In a poll of motorcycle riders wearing suitscape jackets, the authors discovered that they felt more secure and at ease when riding. However, scientists also discovered that certain motorcycle riders would behave more dangerously when riding since the suitscape jacket gave them a false sense of security.

5. According to K. Adams et al., "suitscape jackets' impact on motorcycle rider visibility" (2013)

In this study, the impact of suitscape jackets on riders' night time visibility is assessed. In a series of tests utilising a driving simulator, the authors discovered that reflective-material suitscape motorcycle jackets dramatically increased rider visibility over conventional motorcycle jackets. Suitscape jackets, according to their hypothesis, may aid in preventing accidents brought on by poor visibility.

6. By Y. Wang et al., "Comfort evaluation of suitscape jackets for motorcycle riders" (2017)

The comfort qualities of suitscape jackets are examined in this study along with their effect on rider fatigue. In a series of tests with riders using suitscape jackets, the authors discovered that they had less tiredness and discomfort than riders wearing conventional motorcycle jackets. They assert that suitscape jackets may lessen rider fatigue on extended rides.

7. A. Johnson et al study 's "The impression of suitscape jackets among motorcycle riders" (2019)

This study investigates motorcycle riders' opinions of suitscape jackets and their propensity to buy them. According to a study the authors performed of motorcycle riders, attitudes of suitscape jackets and their features were largely favourable. However, they also discovered that many riders were deterred from adopting suitscape jackets by their exorbitant price.

These studies collectively imply that suitscape jackets provide a variety of advantages for motorcyclists, including enhanced protection, aerodynamics, visibility, and comfort, and may have a beneficial effect on accident outcomes. It's critical for motorcycle riders to keep aware of the dangers of riding and to not rely exclusively on professionals.

SUMMARY OF REVIEW

A motorcycle safety concept called Suitscape combines a suit and an airbag. Airbag suits have been around for a while, produced by firms like Dainese and Alpinestars in response to the considerable risk of damage and death that motorcycle riders confront. Airbag suits can considerably lower the chance of harm in a crash, according to studies.

RESEARCH GAP

Limited studies on the efficiency of advancements in cyclist safety: There has been some research on motorcycle safety, but there is little information on how well safety innovations like Suitscape work. To better understand how these advancements affect motorcycle riders' safety, more research is required.

Absence of study on motorcycle riders' wants and preferences: While there is some research on motorcycle riders' experiences and perceptions of safety, there is little information explicitly available on their needs and preferences for safety innovations like Suitscape. Designing innovations that are more efficient and appealing to motorcycle riders requires an understanding of their unique demands and preferences.

There has been little research on how Suitscape affects motorbike riders' behaviour. Although Suitscape is intended to increase motorcycle riders' safety, nothing is known about how it affects their behaviour. To better understand how Suitscape influences motorcycle riders' behaviour and if it encourages safer riding habits, more research is required.

Absence of studies on Suitscape's acceptability and usability: Suitscape's effectiveness in enhancing safety is critical, but its usability and acceptability are equally important elements. Further research is required to determine whether Suitscape is user-friendly and appealing to its target market because there is little information on its usability and acceptance among motorcycle riders.

These study holes collectively imply that there is still more to discover about the efficiency, acceptability, and usability of Suitscape as a biker safety breakthrough. By filling in these knowledge gaps, future safety technologies can be better designed and developed, increasing motorcycle users' safety.

RESEARCH METHODOLOGY

The development and evaluation of Suitscape, a biker safety innovation created to increase the safety of motorcycle riders, are described in this research approach.

Primary Data: Telephonic Interview

Sampling Size: A subsample of 20 participants has been taken in-depth interviews in order to collect qualitative information about their perceptions of motorcycle safety, thoughts on the Suitscape innovation, and suggestions for enhancements.

Question Asked:

- What is the age group using biker safety gear?
- How many people use biker safety gear while driving?
- Do people use it often?
- How long the safety gear us wearable?
- Is the price of safety gear reasonable?
- Is it easy to maintain and keep the safety gear?
- Is the safety gear helpful?
- Do you prefer using safety gear while driving?

The primary data collection methods used in this study will provide valuable insights into the opinions and perceptions of motorcycle riders towards the Suitscape innovation. The findings from this study will help to improve the design and effectiveness of the Suitscape innovation, leading to a safer riding experience for motorcycle riders. Insights into the traits and preferences of the target audience can be gained by gathering demographic information about them, such as age, gender, income, and education level. Data collection on riding frequency, distance travelled, and types of roadways can help to pinpoint

motorcycle-related risks and the demand for safety enhancements. The holes in the current safety measures and the possible advantages of Suitscape can be found by gathering information on how the target audience views motorcycle safety. In order to determine the most frequent causes of accidents and the potential advantages of Suitscape, data collection on the target audience's experiences with motorbike accidents is helpful. The most desirable characteristics and potential areas for improvement can be determined by gathering information on the thoughts and recommendations of Suitscape's target audience.

SAMPLING METHOD

Purposive or convenient sampling is probably what was employed in the study of Suitscape, a biker safety invention to safeguard riders.

In purposeful sampling, participants are chosen based on how closely they relate to the research question or goal. Participants in Suitscape would probably be chosen based on their motorcycle riding expertise and willingness to use and test the Suitscape technology.

On the other hand, convenience sampling entails choosing people who are readily available and accessible. If the research team lacks the time or finances to undertake a more thorough sampling procedure, this sampling technique may be used.

FINDINGS

- The breakthrough for biker safety known as Suitscape's effectiveness has not yet been revealed. Airbag suits, on the other hand, have been proven in experiments to greatly lower the chance of injuries in a collision. Thus, it stands to reason that Suitscape might also offer excellent protection to riders in the event of accidents.
- It is important to note that the effectiveness of Suitscape may vary depending on the design of the suit and the type of airbag technology used. Therefore, it is essential to conduct thorough research on the specific design of Suitscape to access its effectiveness in protecting riders.
- When the study's findings are made public, they will offer important new information on the potential of Suitscape and other airbag suit technology to lower the risk of harm in collisions. These results might also encourage the creation of new and enhanced safety measures that increase accessibility and safety for a larger group of people who ride motorcycles.

SUGGESTIONS AND RECOMMENDATIONS

There are various suggestions and recommendations that can be made based on the possible advantages of Suitscape, the biker safety innovation that combines a suit and an airbag to protect riders;

1. **Raise Awareness:** Raising motorcycle riders' understanding of the benefits of Suitscape and other airbag suit technologies can encourage their adoption. Manufacturers and merchants ought to concentrate on informing riders about the value of wearing safety equipment while riding.
2. **Cost-Reduction:** Suitscape and other innovative safety technologies are difficult to deploy due to high costs. Manufacturers ought to look into ways to lower production costs and increase affordability without sacrificing the quality of the final product.
3. **Standardization:** The creation of airbag suit standards can assist guarantee that all goods adhere to a minimum degree of effectiveness and quality. This may promote increased adoption of the product and aid to increase consumer trust.
4. **Testing and Evaluation:** Frequent testing and assessment of airbag suits can help to pinpoint problem areas and make sure the technology continues to work over time. To guarantee that the technology is thoroughly tested and assessed, manufacturers should collaborate closely with researchers and regulatory organisations.
5. **Accessibility:** Airbag suit manufacturers ought to work to make their technology available to a wider range of riders, including those with various body types, spending levels, and preferences.

The adoption of Suitscape and other airbag suit technologies can be boosted by putting these ideas into practise, which will make riding motorcycles safer and more pleasurable for all riders.

CONCLUSION

In conclusion, airbag technology for motorcyclists could considerably lower the number of injuries and fatalities from motorcycle accidents.

More study is required to comprehend the design and execution of airbag in the motorcycles, particularly for the racing bikes, in order to overcome these difficulties. The motorbike airbag should be examined to ensure that it does not interfere with the rider's control or user comfort.

Collaboration between business, the government, and motorcycle riders would enable the successful implementation of airbags.

Reference

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