

Smart Safety Jacket with Helmet by Using GPS Tracker

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1.ABSTRACT –

The project aims to design a safety jacket that integrates with helmet and helmet with GPS for enhanced protection. This innovative concept combines the functionality of jackets and helmets, providing complete safety for various activities during construction.

The design prioritizes comfort, durability, and ease of use while prioritizing user safety in different environments. In the field of civil engineering, safety is paramount, and this project introduces a revolutionary concept: a safety jacket incorporating an attached helmet.

This innovation aims to revolutionize on-site safety by merging the functionality of a safety jacket with the critical head protection of a helmet, offering comprehensive safety in a single, wearable solution.

Key Words:

safety jacket, GPS, safety jacket incorporating an attached helmet, construction,,Glass Fiber ,Hazardous situations.

2.INTRODUCTION

The Safety Jacket with Attached Helmet is a monument to creativity and usefulness in a time marked urgent demand for increased safety in a variety of work and recreational environments. by constantly changing workplace safety regulations and a rising focus on personal well-being. This article explores this ground-breaking safety garment in-depth.

It is crucial to have adaptive safety clothing because modern life's demands continue to force people into a variety of settings and pursuits. The Safety Jacket with Helmet Hoodie provides a cutting-edge approach to personal safety, whether you're riding through metro politan environments, work in construction sites ,or going on out do or excursions .It provides a holistic solution with thorough engineering and design. to the difficulties of protecting people in a variety of settings.

The Safety Jacket with Attached Helmet has a plethora of features ,advantages ,and uses, all of which will be covered in

this article. Its goal is to provide readers a thorough grasp of how this novel garment straddles the divide between traditional safety gear and modern fashion. We will break down its design, emphasize its salient characteristics, and evaluate how it might affect people who value safety in a variety of professions and lifestyles in the parts that follow. Discover with us how the Safety Jacket with Helmet Hoodie is ready to alter how we view safety gear in the twenty-first century.

The problems that workers facing to day that are,

1. Carrying of helmet becomes difficult every time.
2. Low strength of the jacket.
3. Some safety jacket contain large amount of padding,

which cans slow moment and result in expending more energy. Despite all these hazards and accidents record, the degree of safety awareness and workers' emotional health is still low among the industry players. Until today, there are yet to be any innovations that can cater to these health problems. Forth is we introducing the Safety Jacket with Attached Helmet, the height of safety .



FIG NO. 1- SMART SAFETY JACKET WITH HELMET

1.DR. SHIVLINGAPA & S.KUBSAD (7 JULY 2014) : Design and development of safety jacket

2.AKHILJAYPRAKASH(27Nov2020):Improving the mechanical properties of natural rubber composite with carbon black

3.RAHULKUMAR(2020):Advancement in materials for industrial safety helmets

4. RAHULKUMAR(2020): Advancement in materials for industrial safety helmets

5. S. ADALI(22Dec2019): Full Metal Jacket Projectile Penetration Analysis of Kevlar only Bulletproof Jacket

4. METHODOLOGY -



5. CREATIVE USE OF TECHNOLOGY-

Real-time GPS Tracking: The helmet's GPS tracker allows supervisors or loved ones to monitor the wearer's real-time location. This is particularly useful for workers in large or remote areas, providing peace of mind and enabling quick response in case of emergencies.



Emergency Alerts with Geo-Fencing: SafeTrack can trigger automatic alerts if the wearer enters unsafe zones (like restricted or hazardous areas), or if they're involved in an accident. For example, if the GPS tracker detects a sudden stop or falls, it can send an alert to supervisors or emergency contacts. The geo-fencing technology can create virtual boundaries, notifying authorities when crossed.

Impact Sensors for Safety: The jacket can have embedded sensors that detect sudden movements or shocks (like a fall or impact) and instantly trigger an alert to the wearer's safety network. The fiberglass jacket

ensures the wearer remains protected while the sensors continuously monitor for hazardous situations.

Temperature and Environmental Sensors: The jacket can be equipped with sensors to detect environmental hazards such as extreme temperatures (too hot or too cold), exposure to harmful gases, or poor air quality. If the environmental conditions surpass safe thresholds, the system alerts the user via a vibration mechanism in the jacket or through an app.

Voice Communication via Helmet: Incorporating a communication system within the helmet could allow workers in large environments to easily communicate with team members without taking off their gear. This could be useful for directions or to notify someone in case of an emergency.

6. Existing solution –



Personal Protective equipment –

Advanced PPE refers to high-tech, specialized safety gear designed to provide superior protection in hazardous environments. These go beyond standard gear and often incorporate modern technology for enhanced safety.

Fall Protection Systems

Fall protection systems are critical in preventing injuries or fatalities when working at heights. These systems

include both active and passive methods to safeguard workers.

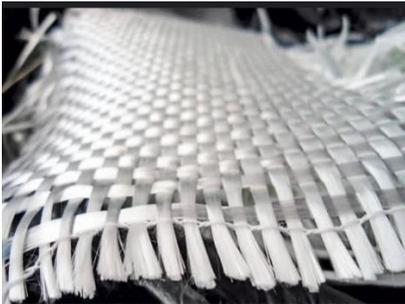
Training and Drills

Training and drills ensure workers are prepared for emergencies and know how to properly use safety equipment.

7. Proposed Solution -

1. Glass Fiber Jacket

Crafted with durable and lightweight glass fiber material, this jacket offers exceptional protection without compromising comfort. It is highly resistant to abrasions, impacts, and extreme weather conditions, making it ideal for motorcyclists, adventurers, and professionals in high-risk environments.



2. GPS Tracker

Equipped with an integrated GPS tracker, this gear ensures real-time location monitoring for added safety and convenience. Whether used for navigation, emergency tracking, or route optimization, the GPS system enhances user security—especially useful for riders or field workers. In case of emergencies, the location can be shared instantly with trusted contacts or emergency services.

3. Enhanced Visibility

Designed with strategically placed reflective strips and high-contrast colors, the jacket and helmet significantly increase visibility in low-light conditions. This feature is essential for nighttime or foggy environment use, reducing the risk of accidents by making the wearer more noticeable to others on the road or in the field.

4. High-Tech Helmet

The helmet features cutting-edge technology, including a built-in communication system, noise cancellation, and a heads-up display (HUD). Riders can receive navigation prompts, call notifications, or speed data without taking their eyes off the road. The helmet is also designed for maximum impact resistance, ventilation, and comfort, ensuring safety without sacrificing performance.

8. Conclusion:-

In conclusion, the development and implementation of a safety jacket with a helmet for laborers at construction sites represent significant steps towards enhancing the safety, well-being, and efficiency of workers in this demanding industry.

This innovative piece of safety gear brings together key elements, combining the protection of a sturdy helmet with the practicality and visibility of a high-visibility jacket. By doing so, it addresses several critical aspects of construction site safety:

- Visibility
- Comfort
- Compliance
- Versatility
- Head Protection

However, it's important to note that the effectiveness of such safety gear hinges on proper usage and adherence to safety protocols. Workers must be educated on the importance of consistently wearing the safety jacket with the integrated helmet and following recommended safety practices.

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