Standard Spectrum 4.0

EVENT: "PRESENTATION ON STANDARDS"
TITLE: Protective Helmet for Two-Wheeler Riders
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TABLE OF CONTENTS

01 Introduction & Problem Statement

02 Helmet Design & Safety Standards

03 Smart Features & Market Feasibility

04 Implementation & Future Scope

01

Introduction & Problem Statement

Let us look into the Importance, Challenges and Objectives of helmets

Importance

Helmets play a crucial role in preventing head injuries and fatalities in road accidents. Studies show that wearing a helmet reduces the risk of head injury by up to **70%** and the risk of death by **40%**.

Challenges

Despite their proven effectiveness, many riders either do not wear helmets or use substandard ones due to **discomfort, poor ventilation, heavy weight, and lack of style**.

Safety Gaps

Existing helmet designs focus on basic impact protection but lack **advanced safety features** such as real-time crash alerts, noise reduction, or integrated communication

Our Objective

To **innovate helmet technology** by integrating modern safety features, improved comfort, and better materials while ensuring affordability and compliance with global standards.

02

Helmet Design & Safety Standards

Let us look into the existing standards and regulations

Why Standards Matter?

Ensures Maximum Protection

Certified helmets undergo rigorous testing to withstand high-impact crashes, reducing the risk of fatal head injuries.

Prevents Counterfeit & Unsafe Helmet

Standardized regulations help filter out low-quality, uncertified helmets that fail to provide proper protection.

Legal Compliance & Safety Assurance

Many countries mandate helmet standards to protect riders, ensuring they meet safety benchmarks before being sold.

Global Helmet Standards

DOT (Department of Transportation - USA)

ECE 22.06 (Economic Commission for Europe - EU & 50+ countries)

ISI (Indian Standards Institute - India)

SHARP Rating (UK)

TESTS UNDER ISI

Impact Test

Helmets are dropped from a specific height onto a solid surface to test their ability to absorb impact forces.

Penetration Test

A sharp object is dropped on the helmet to check if it can withstand punctures and prevent head injuries.

Retention System Test

The chin strap is tested for strength and effectiveness in keeping the helmet securely in place.

OTHER TESTS FOR HELMETS

Rigidity & Shell Deformation Test

Visor Scratch & Optical Test

Optical Test

High & Low-Speed Impact Tests

Aerodynamic Testing

Environmental Testing

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How to Identify ISI Standard Helmets ?

- Look for the ISI Mark
- Check the ISI Code (IS 4151 for Two-Wheeler Helmets)
- Verify the BIS Certification
- Build Quality & Packaging
- Beware of Fake ISI Marks

03

Smart Features & Market Feasibility

Let us look into the safety features & Market Feasibility of the Smart Helmets

Smart Features of Helmets

New-age helmets integrate technology-driven safety and convenience features, including:

- Bluetooth Connectivity
- Built-in GPS & Navigation
- Crash Detection and SOS Alerts
- Air Quality Sensors
- Heads-Up Display

Market Feasibility

Growing Market Demand

The global **smart helmet industry** is projected to grow due to increasing **road safety concerns** and **rider convenience needs**

Affordability & Pricing Strategy

High-tech helmets can be expensive due to embedded electronics, making cost a key factor.

Safety Regulations

Mandatory helmet laws in India and other countries can push smart helmet adoption. ISI & BIS certification must be considered.

04

Implementation & Future Scope

Let us look into the future scope of helmets and its implementations

Helmets With Indicators

Helmets With Air Conditioners

Future Scope

Smart helmets are the future of **motorcycle safety**, combining **technology, connectivity, and AI-driven intelligence** to **reduce fatalities** and improve the riding experience.

Thank You !!!

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