



Airplane Safety Airbag System

Project Year: 2024

Type: Engineering Innovation Project

Role: System Designer & Developer

Project Description:

A fully integrated and innovative safety system designed to enhance passenger protection during emergency landings in aircraft. The system includes custom-shaped airbags that are automatically deployed upon impact detection. It also features a GPS tracking unit that transmits the aircraft's real-time location (latitude and longitude) during emergencies, supporting faster rescue response.

Key Features:

3D-Printed Airbag Frame: Tailored to fit the aircraft cabin using lightweight and durable materials. •

Collision Detection Sensors: Built-in shock and tilt sensors to detect abnormal impact or descent. •

Smart Control Logic: Automatic deployment of airbags using Arduino/ESP32 microcontrollers. •

GPS Tracking System: Sends real-time geographic coordinates (latitude and longitude) to emergency contacts or control centers. •

Modular Structure: Easy to assemble, disassemble, and maintain. •

Compact Design: Does not interfere with cabin wiring or passenger space. •

Technologies Used:

Arduino / ESP32 •

Shock and tilt sensors •

GPS module •

Servo motors for deployment simulation •

3D printing + CAD modeling •