Aurangabad
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Requirements specification

Topic **Requirement Specification for Telematics Dongle**

Contents

Revision History

Date	Version	Description	Author
08-Feb-2025	1.0	Requirements Release	Rahul Chandrashekar rchandrashekar@endur-ance.co.in

Definitions, Acronyms and Abbreviations

A.I	Artificial Intelligence
BLE	Bluetooth
GPS	Global Positioning Sensor
MEMs	Micro Electromechanical System
PCB 0	Printed Circuit Board ZERO
WP	Work Package

1 Introduction

1.1 Purpose

The goal is to design and develop a **low-cost telematics dongle PROTOTYPE** that can **acquire real-time vehicle data**, focusing on acceleration events, time-stamped data, and connectivity to a mobile/cloud-based dashboard.

1.2 Work packages

The top-level requirements are mapped to the work packages as specified

- WP1: Hardware Development (Circuit Design, PCB, Sensors)
- WP2: Firmware and Embedded Development (Data Processing, Sensor Fusion)
- WP3: Mobile App and Cloud Integration
- WP4: Data Analytics and Visualization

1.3 Scope

- Developing a prototype telematics dongle.
- Collecting vehicle acceleration data over time (Time Card).
- Measuring connectivity parameters (GPS, BLE, Cellular).
- Sending data to a dashboard for analysis. Bonus if it is cloud based dashboard
- Presentation of the concept
- Cost BoM structure

1.4 Out of Scope

- Commercial production of the dongle.
- Advanced AI-based predictive analytics (Beyond initial statistical insights)

1.5 Assumpions and Dependencies

- The prototype will use off-the-shelf electronic components.
- The system will interface with mobile apps via Bluetooth/Wi-Fi.
- Data will be stored in the cloud with predefined security measures.
- Try to interface the GPS data from phone

2 Functional Requirements

- Capture **vehicle acceleration events with time stamps**. You can use a simple MEMS sensor for this activity
- Real-time **data transmission to the mobile app/cloud**.
- Provide an interface for users to **visualize events and alerts**.
- Simple scorecard on vehicle performance.
- Ensure the code and system does not cyclomatic complexity

3 Non Functional Requirements

- The system should have a **latency < 500ms** for event logging.
- **Power-efficient design** to ensure battery longevity.
- **Data storage resilience** to avoid loss in case of connectivity issues.

4 Mode of Delivery

- The prototype will be delivered in a **functional enclosure**.
- Software and documentation will be provided in a **Git repository**.
- A **demo session** will be conducted post-development.