

# Software Requirements Document

## TrailTrackerUL

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## Introduction

This document provides the software requirements for a lightweight and portable GPS tracking device. The purpose of this device is to track the location of assets or individuals in real-time.

## Definitions

**GPS** - Global Positioning System, a satellite-based navigation system used to determine the location of a device.

**Session** - A period during which the device records location data for up to 10 days.

**Real-Time Operating System (RTOS)** - An operating system that manages hardware resources and runs applications with precise timing requirements.

## Functional Requirements

- FR1** The device shall have an on-off switch.
- FR2** The device shall have a button to start a new session.
- FR3** The device shall be able to record at least 10 sessions.
- FR4** The device shall be able to acquire GPS signals.
- FR5** The device shall be able to calculate and track the current location.
- FR6** The device shall be able to record location data for at least 10 days of continuous use.
- FR7** The device shall have an interface to extract session-data.

## Non-Functional Requirements

**NFR1** The device shall be lightweight, weighing no more than 100 grams.

**NFR2** The device shall have a battery life of at least 240 hours.

**NFR3** The device shall be able to withstand temperatures from -30°C to 65°C.

**NFR4** The device shall be water-proof.

**NFR5** The device shall be able to withstand a drop of at least 2 meters.

## System Requirements

**SR1** The device shall run on a real-time operating system.

**SR2** The device shall have a microcontroller with at least 32-bit architecture.

**SR3** The device shall record a position at least once per minute.