

IoT Anti-Crime Platform using MicroGPS Chips

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Background

- High Crime in South Africa [1].
- GPS Trackers are limited to cars.[2]
- Small Properties are difficult to be traced.[3]

Problem Statement

- Lack of tools for tracking small properties such as laptops and backpacks.
- Need for low cost MicroGPS tracking system.

Proposed Solution

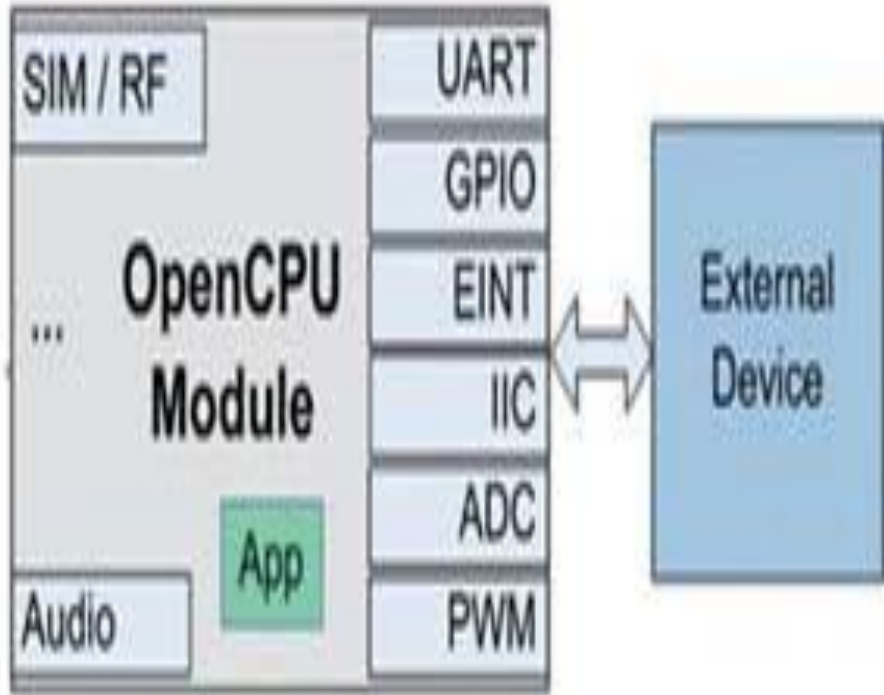


Figure1: OpenCPU Frame Work[4]

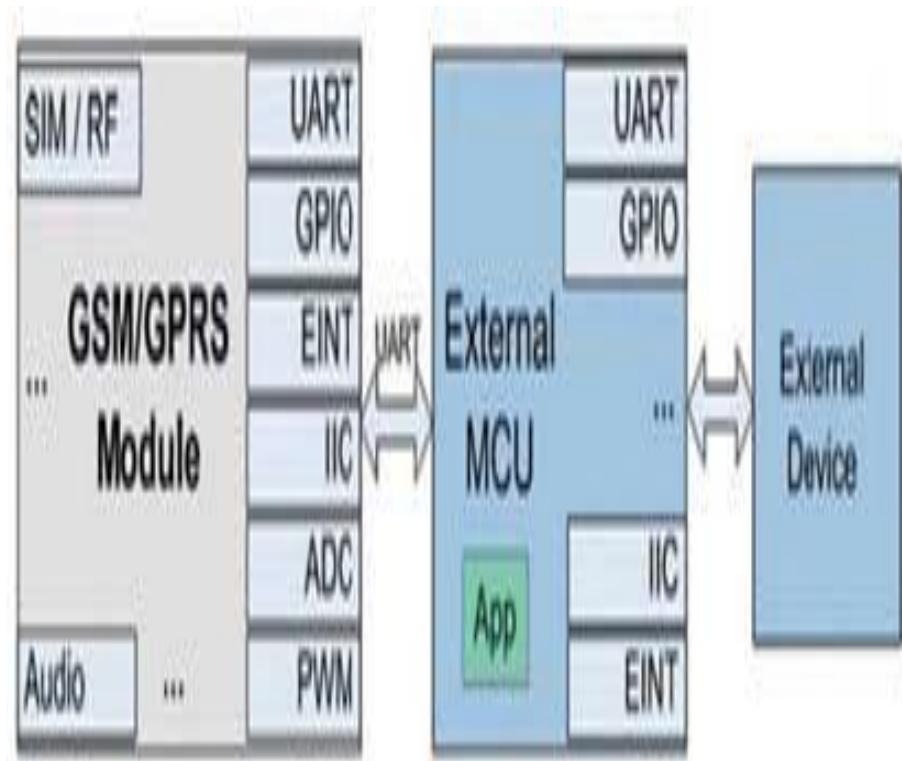
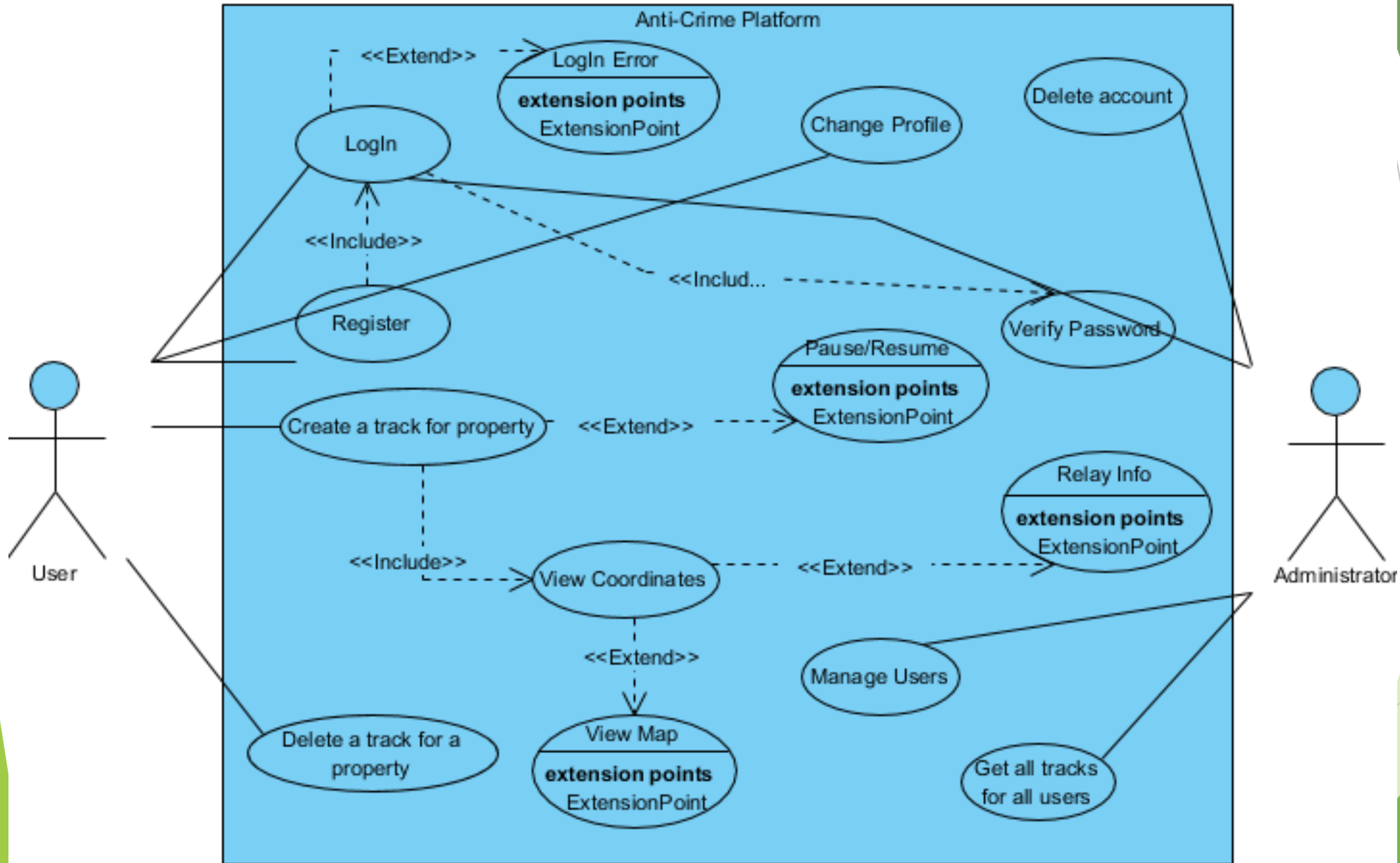


Figure 2: Conventional Frame Work[4]

Significance of the Project

- Help crime fighting authorities in locating stolen properties.
- Having a personal tracker to track misplaced properties.

Use Case Diagram



Requirements

User Requirements

- **User View of the Problem**
 - System will be used by anyone
 - Initiate track even on mobile
 - Monitor and Control tracked property
- **Software Solution Expectation**
 - Accurate location information
 - Long Battery Life
 - Low Cost MicroGPS

Functional Requirements

- Creating an account
- User Log in
- Creation of a track for property
- Deleting a tracked property
- View tracked properties
- Relay info

Non-Functional Requirements

- Performance
- Reliability
- Ease of Use
- Energy Efficiency
- Low Cost

Requirements

System Requirements

- **Software Requirements**
 - Java
 - MySQL
 - Adobe XD
 - Python
- **Hardware Requirements**
 - PC/Laptop
 - MicroGPS Chip
 - SIM Card

Project Plan for Term 2

- Design the interface
- Research on communication network between the server and MicroGPS
- Develop a prototype

Reference

- [1] Gabriel Demombynes, Berk Ozler, "Crime and Local Inequality in South Africa," The World Bank Development Research Group, November 2002.
- [2] Shital Mohol, Pavanikar, Ganesh Dhage, "GPS Vehicle Tracking System," International Journal of Emerging Engineering Research and Technology, vol. 2, no. 7, pp. 71-75, October 2014.
- [3] Laura A. McMahon, Janet L. Rachlow, Lisa A. Shipley, Jennifer S. Forbey, Timothy R. Johnson, Peter J. Olsoy, "Evaluation of micro-GPS receivers for tracking small-bodied mammals," McMahon et al, vol. 12, no. 3, pp. 1-19, 16 March 2017.
- [4] Manjunath P.K, Sri Janani R., Anju S. Pillai , "OpenCPU Platform for IoT Applications - A Study," in IEEE International Conference on Technological Advancements in Power and Energy (TAP Energy), 2017.