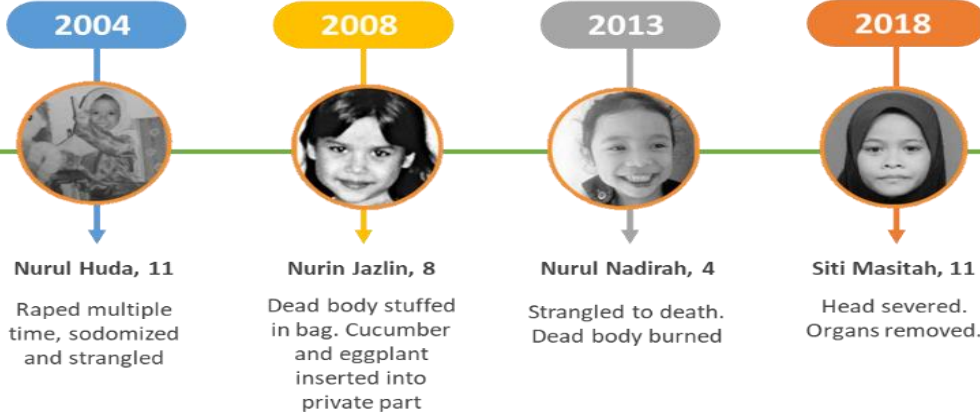# GEOFENCE ALERTS APPLICATION WITH GPS TRACKING FOR CHILDREN MONITORING

INVENTOR: DR. MOHD IZHAM BIN MOHD JAYA
FACULTY: FACULTY OF COMPUTING
UNIVERSITY: UNIVERSITI MALAYSIA PAHANG
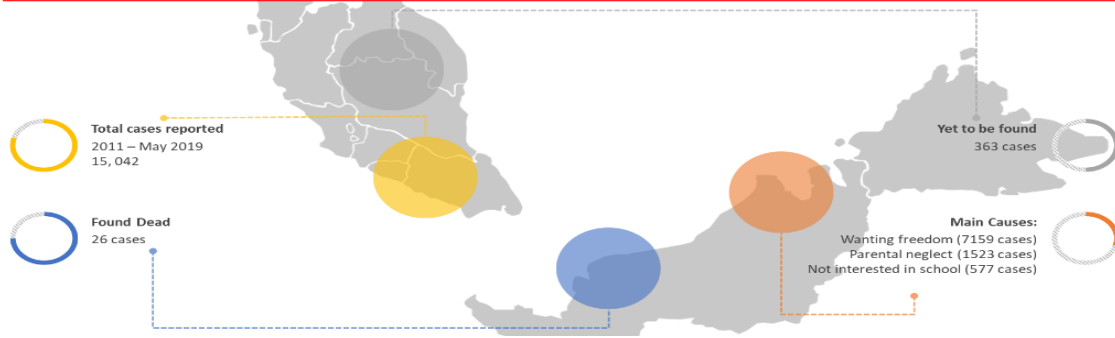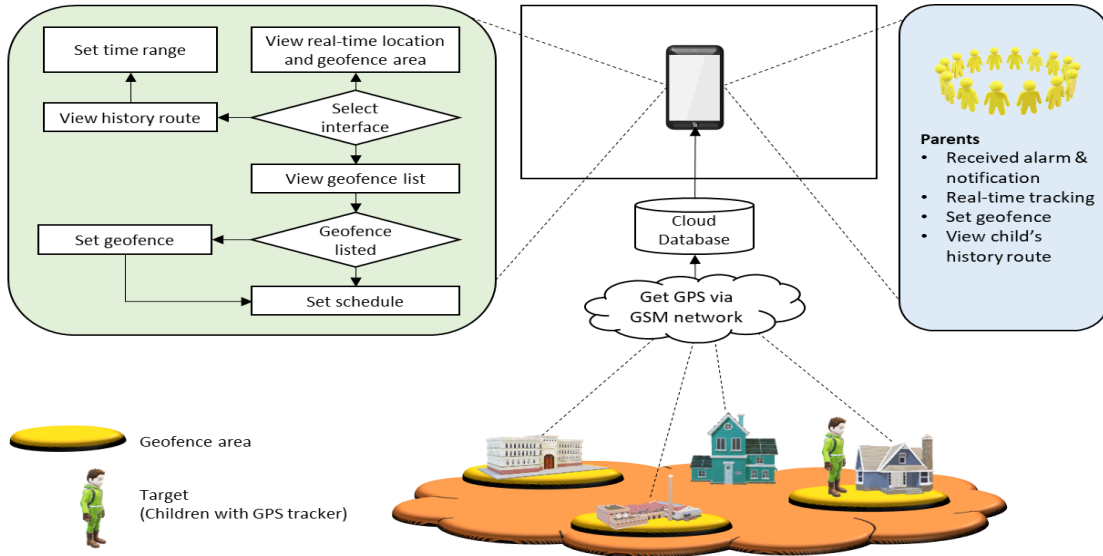EMAIL: izhamjaya@ump.edu.my
CO-INVENTORS: GOH XIN TONG

CITReX 2021

Universiti Malaysia PAHANG — Engineering • Technology • Creativity

Product Background

INFAMOUS CASES OF MALAYSIA CHILD VICTIM

2004 — Nurul Huda, 11 — Raped multiple time, sodomized and strangled

2008 — Nurin Jazlin, 8 — Dead body stuffed in bag. Cucumber and eggplant inserted into private part

2013 — Nurul Nadirah, 4 — Strangled to death. Dead body burned

2018 — Siti Masitah, 11 — Head severed. Organs removed.

CASES OF MISSING CHILDREN IN MALAYSIA

- Total cases reported 2011 – May 2019: 15,042
- Found Dead: 26 cases
- Yet to be found: 363 cases

Main Causes:
Wanting freedom (7159 cases)
Parental neglect (1523 cases)
Not interested in school (577 cases)

Novelty

Set time range → View real-time location and geofence area

View history route → Select interface

View geofence list

Set geofence ← Geofence listed

Set schedule

Cloud Database

Get GPS via GSM network

Parents
- Received alarm & notification
- Real-time tracking
- Set geofence
- View child's history route

- Geofence area
- Target (Children with GPS tracker)

COMPARISONS WITH OTHER PRODUCT IN THE MARKET

Features	Yepzon One	Jiobit	Relay	OEM brand in Shopee.com	Our App
Mobile based application	Yes	Yes	Yes	Yes	Yes
Real-time location map	Yes	Yes	Yes	Yes	Yes
Geofence setting	No	Yes	Yes	No	Yes
History route view	Yes	No	Yes	No	Yes
Alert & Notification	No	Yes	No	No	Yes

Multi-personal tracker
Universal GPS locator to track children, elderly with memory disorder and things. Even able to track patient under investigation (PUI) for Covid-19 cases.

Schedule geofence location
Set multiple geofence and schedule time for target presence.
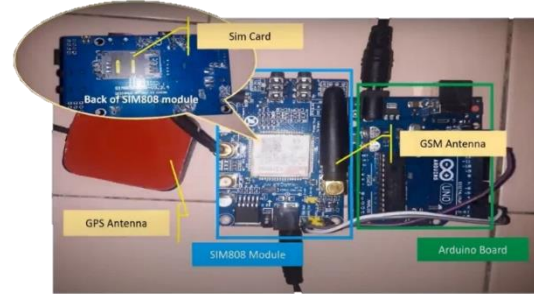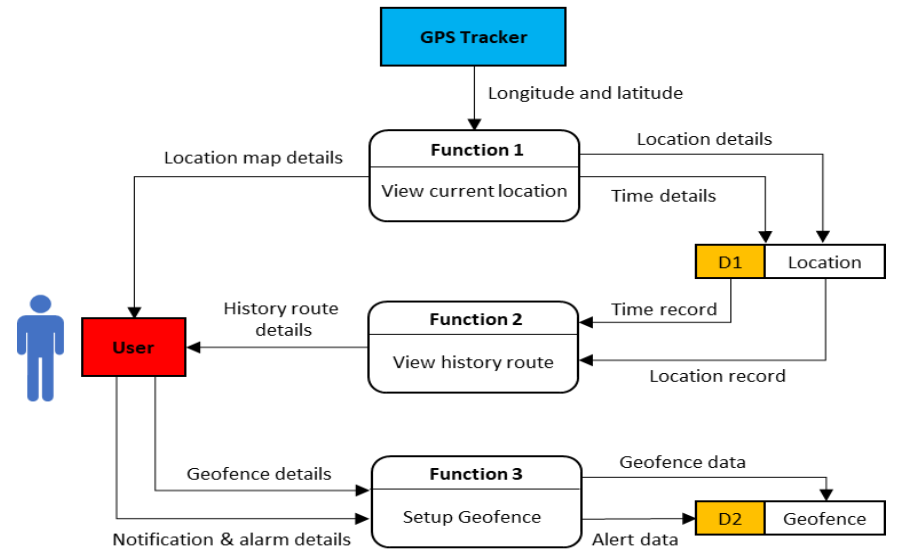
Applicability

APPLICABILITY

Binding with android application
Follow the moving target in real-time using mobile application in android environment.

Geofence alert & notification alarm
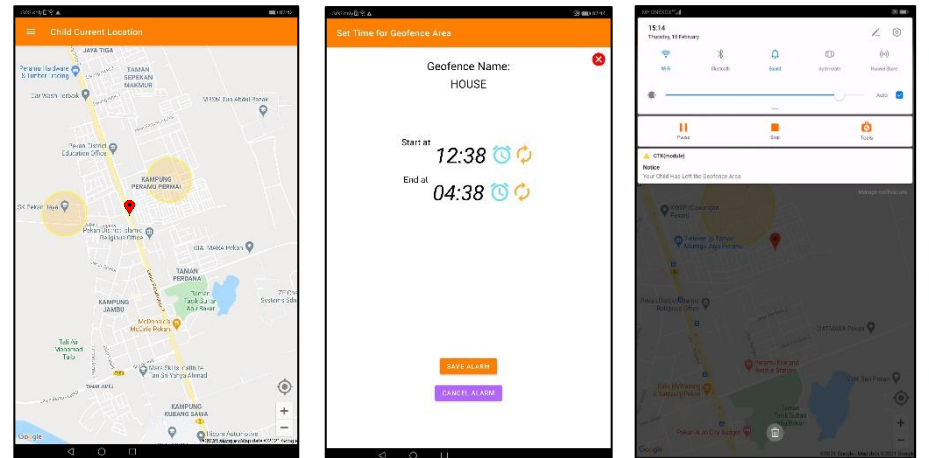Get alert through notification and alarm on mobile phone when target is moving out from the geofence.

GPS Accuracy: approx. 2.5M
Tracking using GPS technology with accuracy approximate to 2.5 meters.
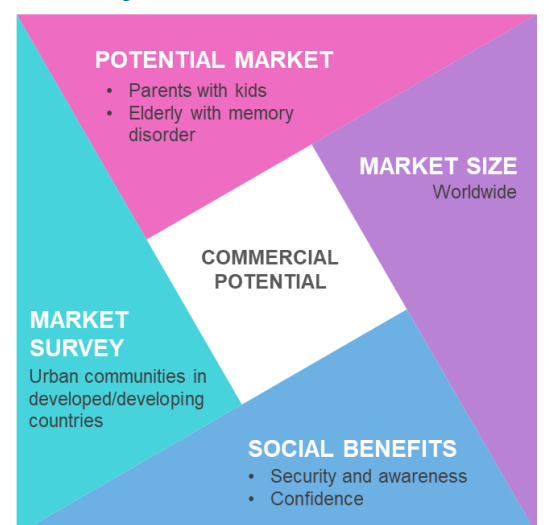
Methods

USED METHOD

GPS Tracker → Longitude and latitude

Function 1 — View current location → Location map details, Location details, Time details

D1 — Location

Function 2 — View history route → History route details, Time record, Location record

User

Function 3 — Setup Geofence → Geofence details, Geofence data, Notification & alarm details, Alert data

D2 — Geofence

Product Image

Sim Card, Back of SIM808 module, GSM Antenna, GPS Antenna, SIM808 Module, Arduino Board

Child Current Location

Set Time for Geofence Area
Geofence Name: HOUSE
Start at 12:38
End at 04:38

Cost Analysis

* Our product priced around RM150.

	Yepzon One	Jiobit	Relay	*OEM brand in Shopee.com
Price	RM669	RM400	RM200	RM30-RM100

Marketability & Commercialisation

POTENTIAL MARKET
- Parents with kids
- Elderly with memory disorder

MARKET SIZE — Worldwide

COMMERCIAL POTENTIAL

MARKET SURVEY
Urban communities in developed/developing countries

SOCIAL BENEFITS
- Security and awareness
- Confidence

Industrial Partner

PAKAR@WORK

Status of Innovation

Ready to use product

Publication

- Children Tracking System Using Arduino (CTS), Undergraduate thesis, Universiti Malaysia Pahang, 2021.
- Geofence Alerts Application With GPS Tracking For Children Monitoring, 7th International Conference on Software Engineering & Computer Systems (ICSECS), 2021 (IEEE Proceedings) (Submitted)