Sign Tracking Device

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Project Statement

This project is about developing a tracking device that can be inconspicuously attached to a traffic sign, and can communicate information about its location with a server over a long range network. It is also the development of a web/mobile application that can communicate with the server to pinpoint where each tracking device is located.

Purpose and Goals

- Purpose
  - Save money
  - Save lives
- Goals
  - Customer satisfaction
  - Have a device small enough that it can remain hidden
  - A device that is battery powered and can last around nine months
  - Implement a server and database where the information will be stored
  - Implement a web/mobile application that can interface with the server and database

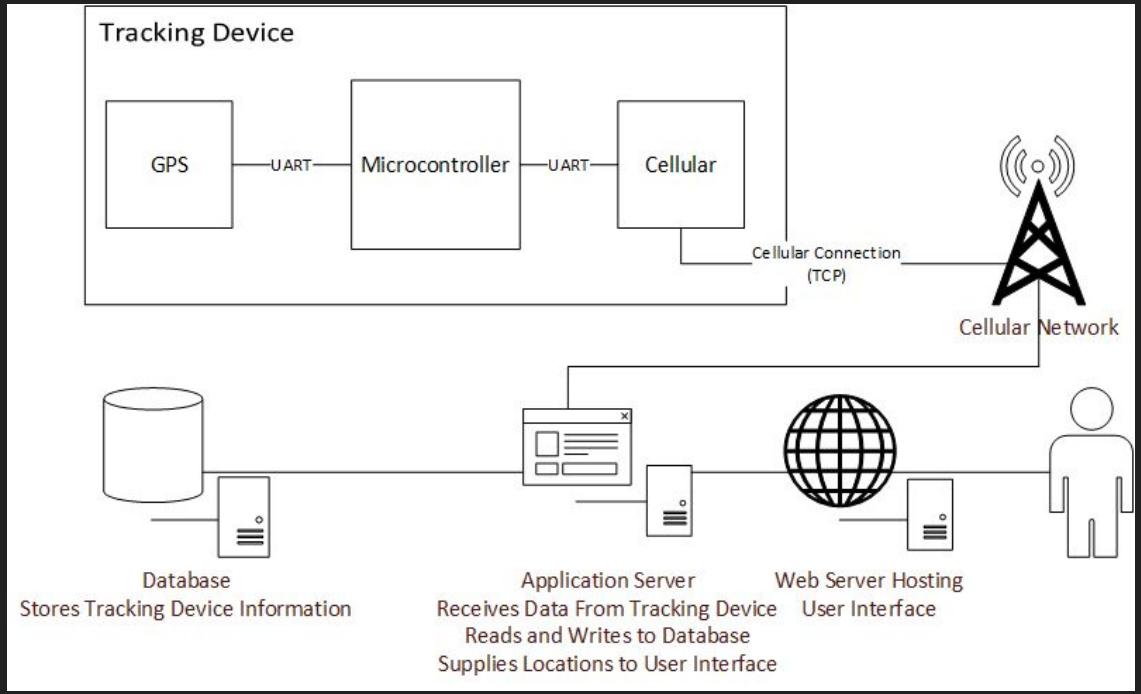
Similar Products

- GPS/Wi-fi Pet Tracking Devices
- Vehicle Tracking Devices
- Luggage Tracking Devices
- Portable Wireless Alarm System with GPS

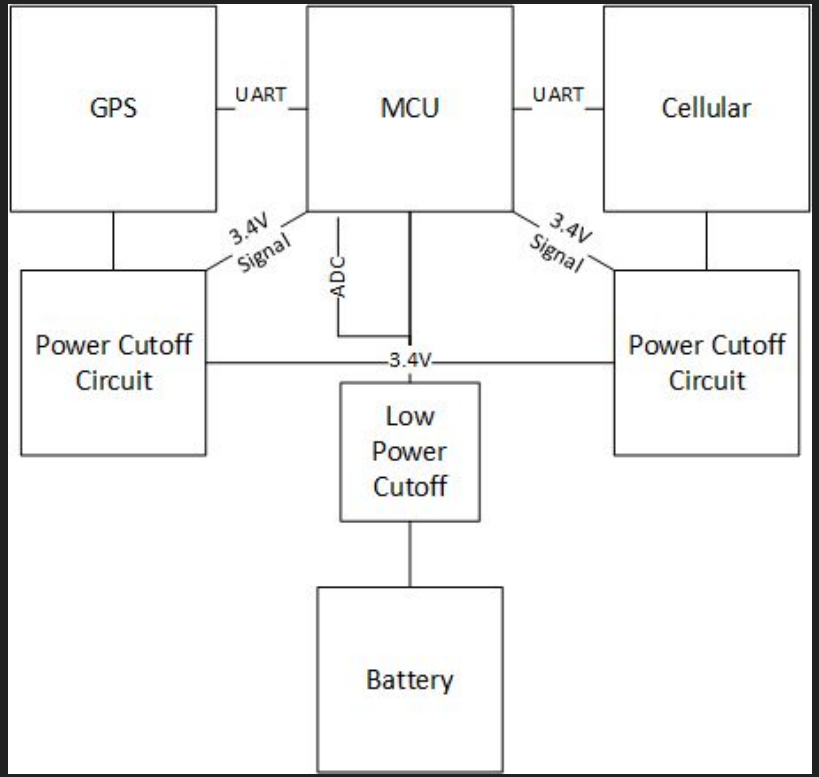
Deliverables

- The Device
  - Microcontroller
  - GPS Chip
  - Cellular Chip
  - Battery
- The Database
- The Web/Mobile Application

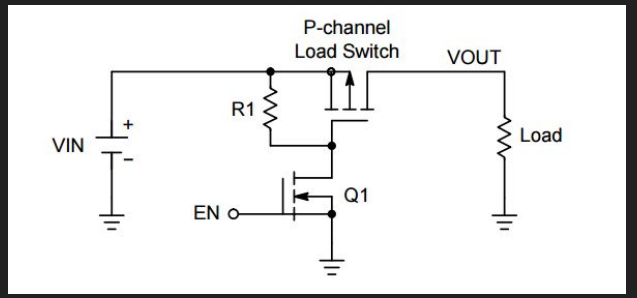
Design


Tracking Device
GPS
UART
Microcontroller
UART
Cellular
Cellular Connection
(TCP)
Cellular Network
Database
Stores Tracking Device Information
Application Server
Receives Data From Tracking Device
Reads and Writes to Database
Supplies Locations to User Interface
Web Server Hosting
User Interface

The Device



Power Cutoff Circuit



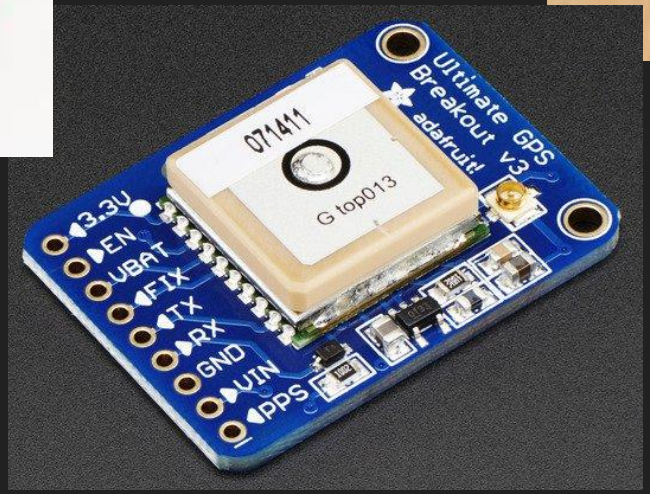
The Device

Above: MCU Name

TI-MSP430G2553

Below: GPS Name

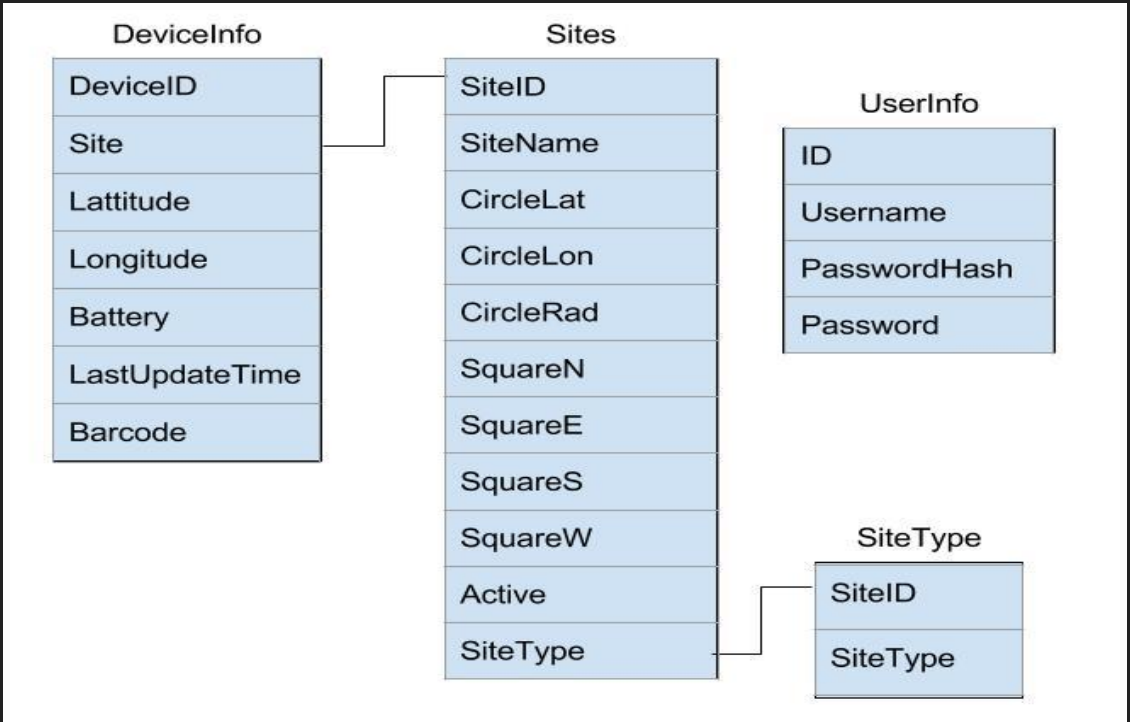
MTK3339



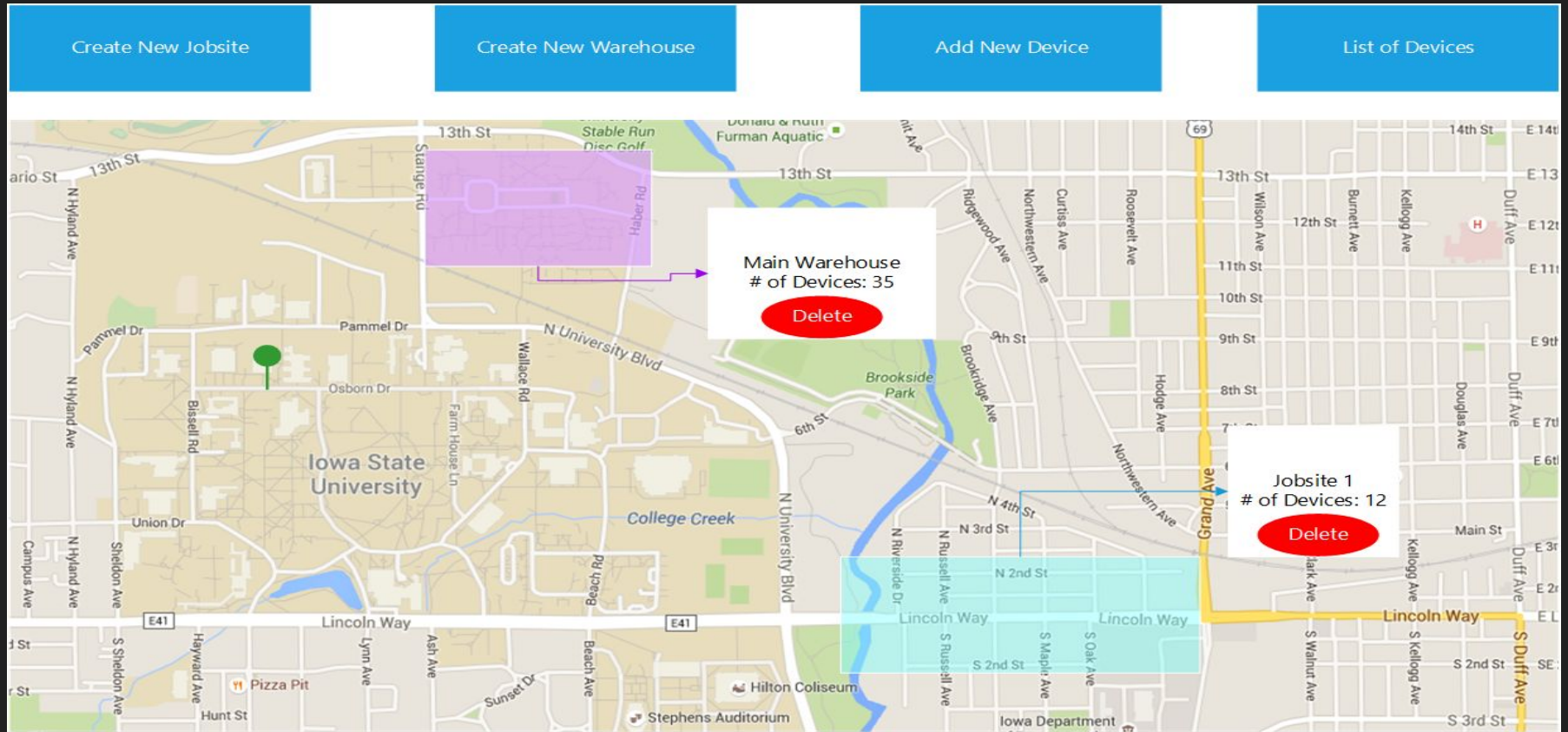
Above: Ublox SARA-U260

On the Konekt Dash

The Database



The Application



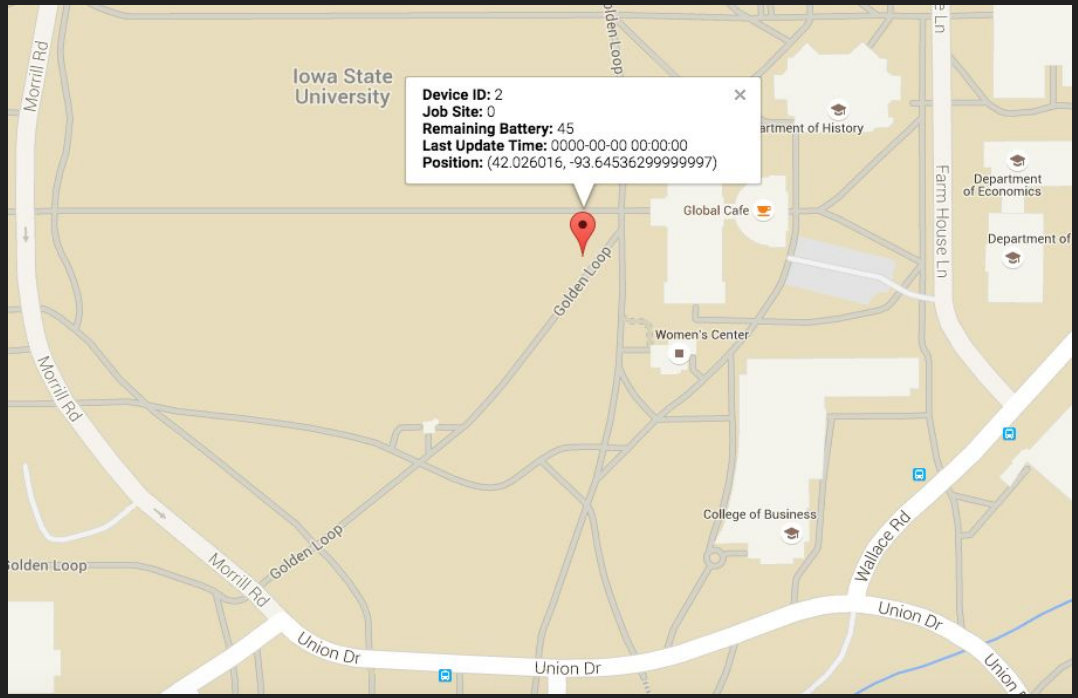
The Application

Design Goals

- Provide a reliable tracking device that is cost effective and requires little maintenance
- Provide a user friendly interface to locate assets
- Provide a user friendly interface to manage tracking devices

Accomplishments

- Database Setup
- Hardware Tested Individually
- User Interface Sketches
- Prototype of User Interface



Plan for Next Semester

- Work out details of User Interface with customer
- Implement User Interface
- Build Device to report location to our Server
- Write firmware for Konekt Dash to pass AT commands from MCU to SARA-U2
- Design single board circuit for production
- Test customer use cases with multi board prototype

Questions?

Sources

- Images
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  - http://www.engadget.com/2014/10/20/bluesmart-connected-luggage-indiegogo-campaign/
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  - https://konekt.io/store
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  - http://www.ti.com/tool/msp-exp430g2#
- Price
  - http://shop.whistle.com/products/whistle-gps-pet-tracker
  - https://www.podtrackers.com/products/pod/
  - http://www.brickhousesecurity.com/category/gps+tracking/vehicle+tracking+de
  - https://checkout.bluesmart.com/
  - http://shop.mobilelockstore.com/