Reporting Motor Vehicle Accidents with a GNSS based application

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Overview

- Background
- Current Method & Associated Problems
- Other Methods
- My Application - Demonstration
- A-GPS Accuracy
- Summary

Background

Problem:

- Current accident reporting systems used in N.B. are hand written and outdated

Objective:

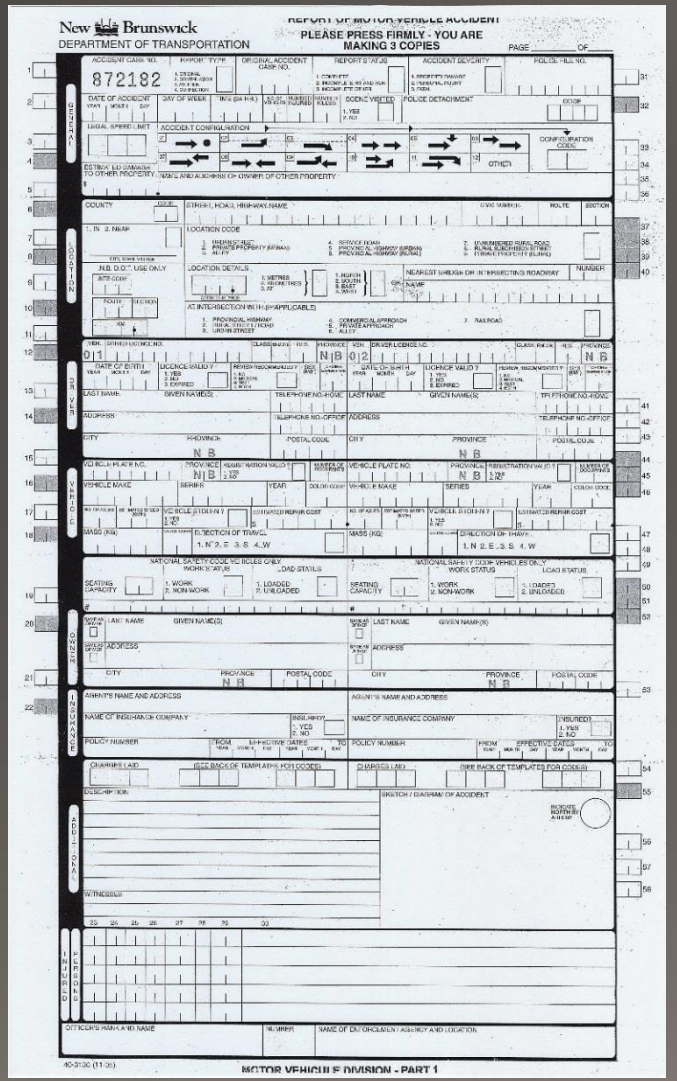
- Prove the accuracy of GNSS vs. conventional method
- Build a phone APP to demonstrate the ease of locating and digital reporting

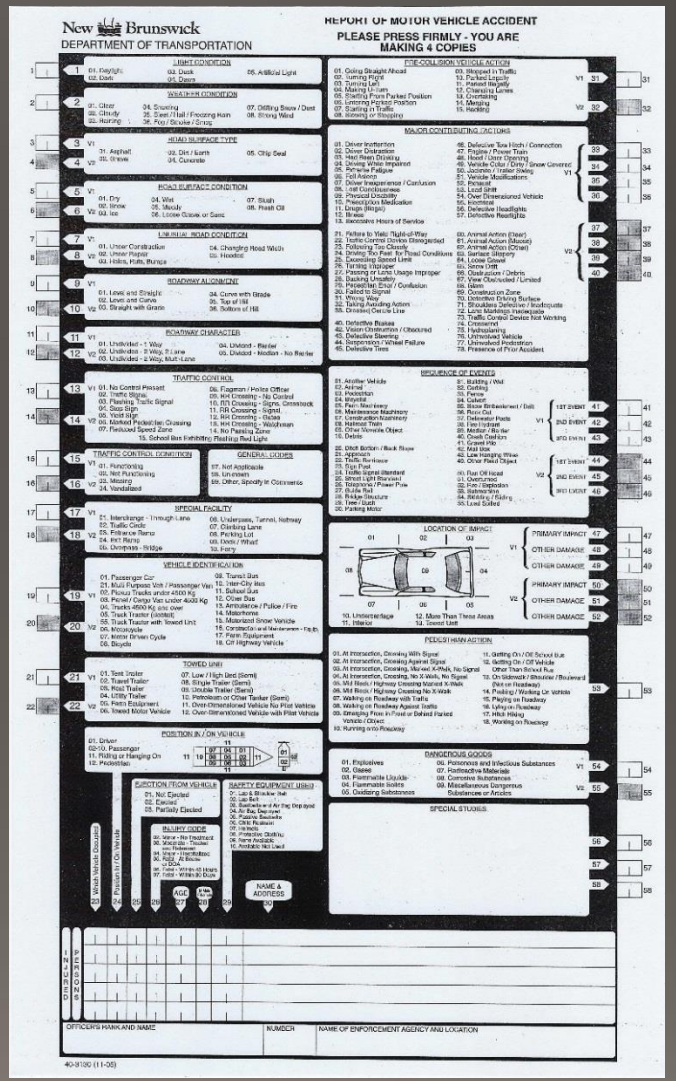
Research:

- Research the current methods used in N.B.
- Research other digital methods used worldwide

Current Method/System

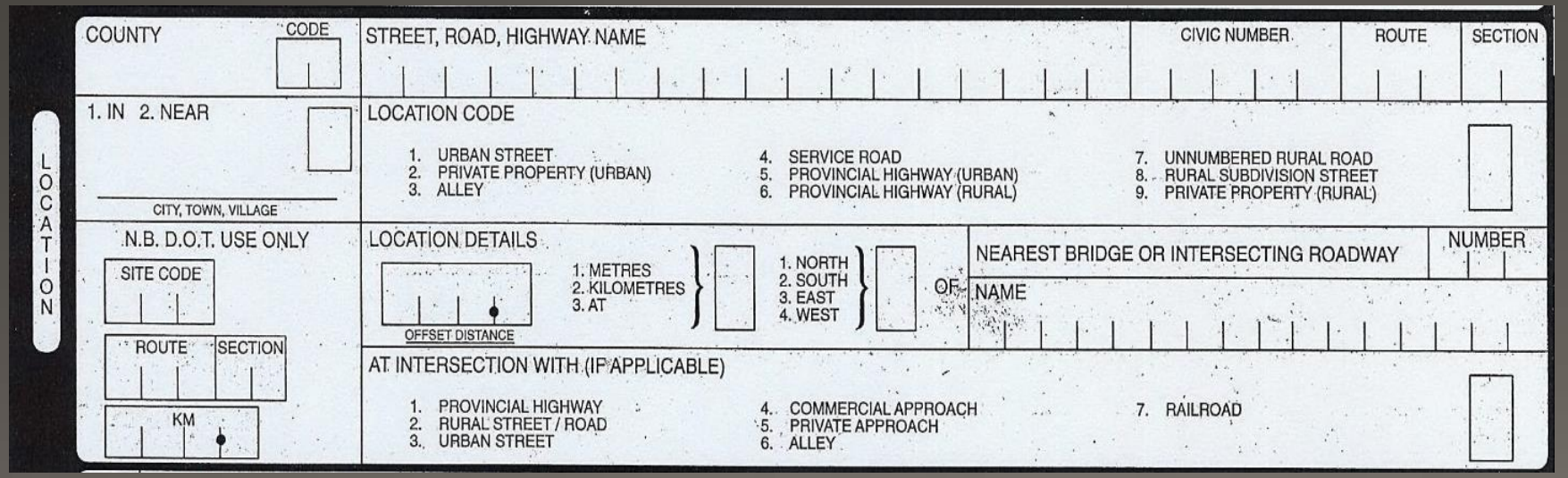
- Hand Written





Problem 1: Accuracy

- There is no set standard or tolerance in recording the location of an accident
- NB Motor Vehicle Act (130-139)



New Brunswick Road Network

- Referencing accidents in rural areas

2006 NB Accident Data

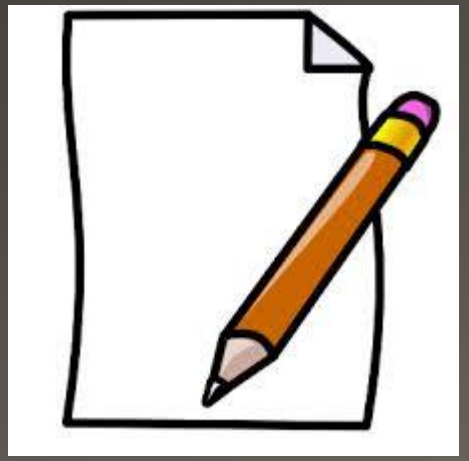
- All the data is sanitized
- 14610 accidents
- 54 fields of information for each accident
- Inconsistency's in format, abbreviations, measurement units
- Creates problems when managing data in a GIS

Problem 2: Blunders

Error Type	Example
Street Spelling	LANDSDOWNE LANSDOWN LANSDOWNE
Street Type	SHERRARD AVE SHERRARD ST
Day of the month format	03 3
Accident Time	700 7
Coding	Code 2 (km), quantity: 800 (Code 1 for metres should have been selected)

Problem 3: Transcribing

- Getting the data into the GIS
- It's redundant
- Another source of error



Motor Vehicle Accident Report

Transcribing.

Data Base

Other Methods

Hand held GPS

- Coordinates are transcribed to the report
- Source of error

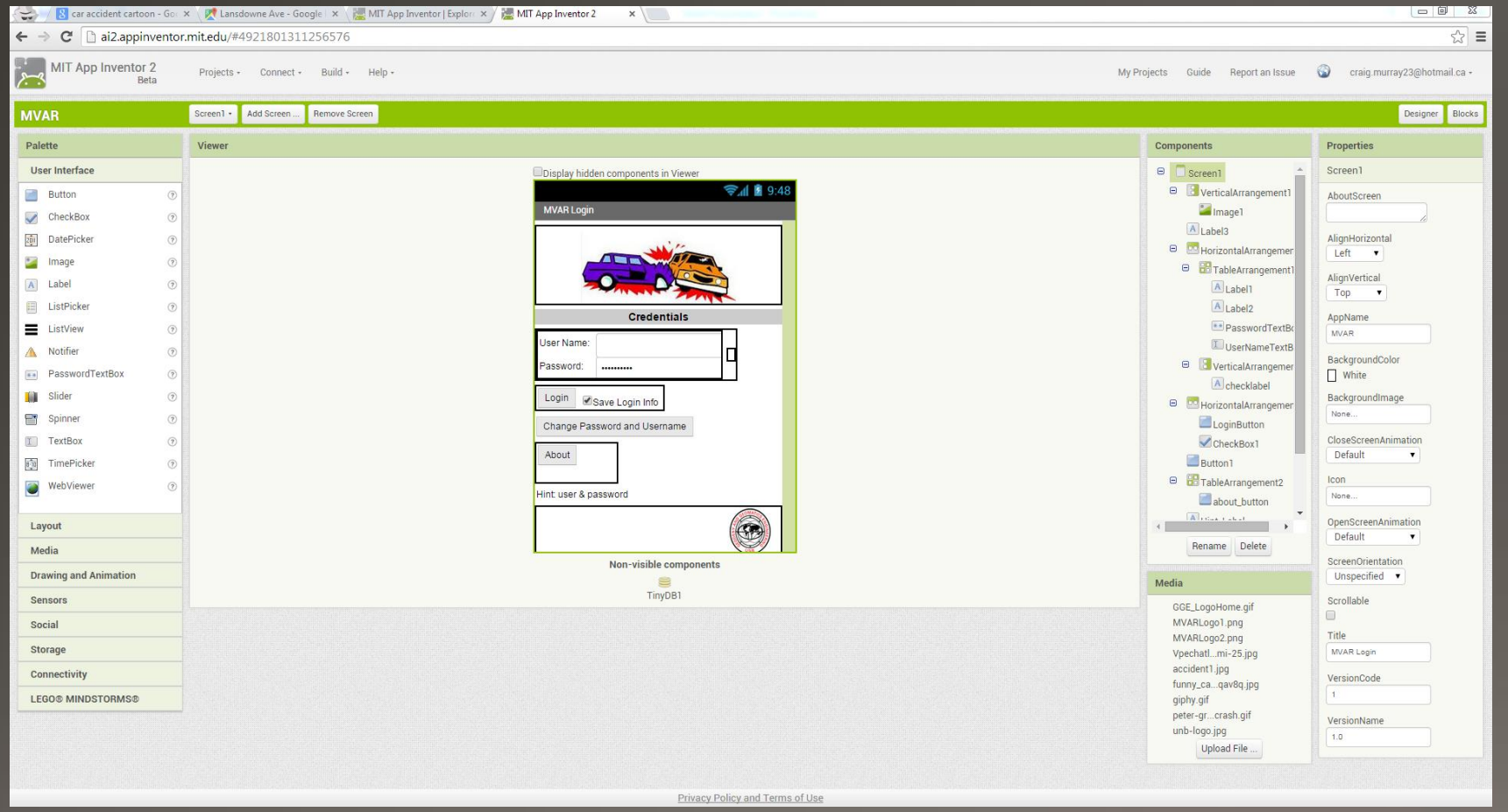
MDT integrated with GPS and GIS maps

- GPS on the car
- GIS maps are stored on the MDT

Demo

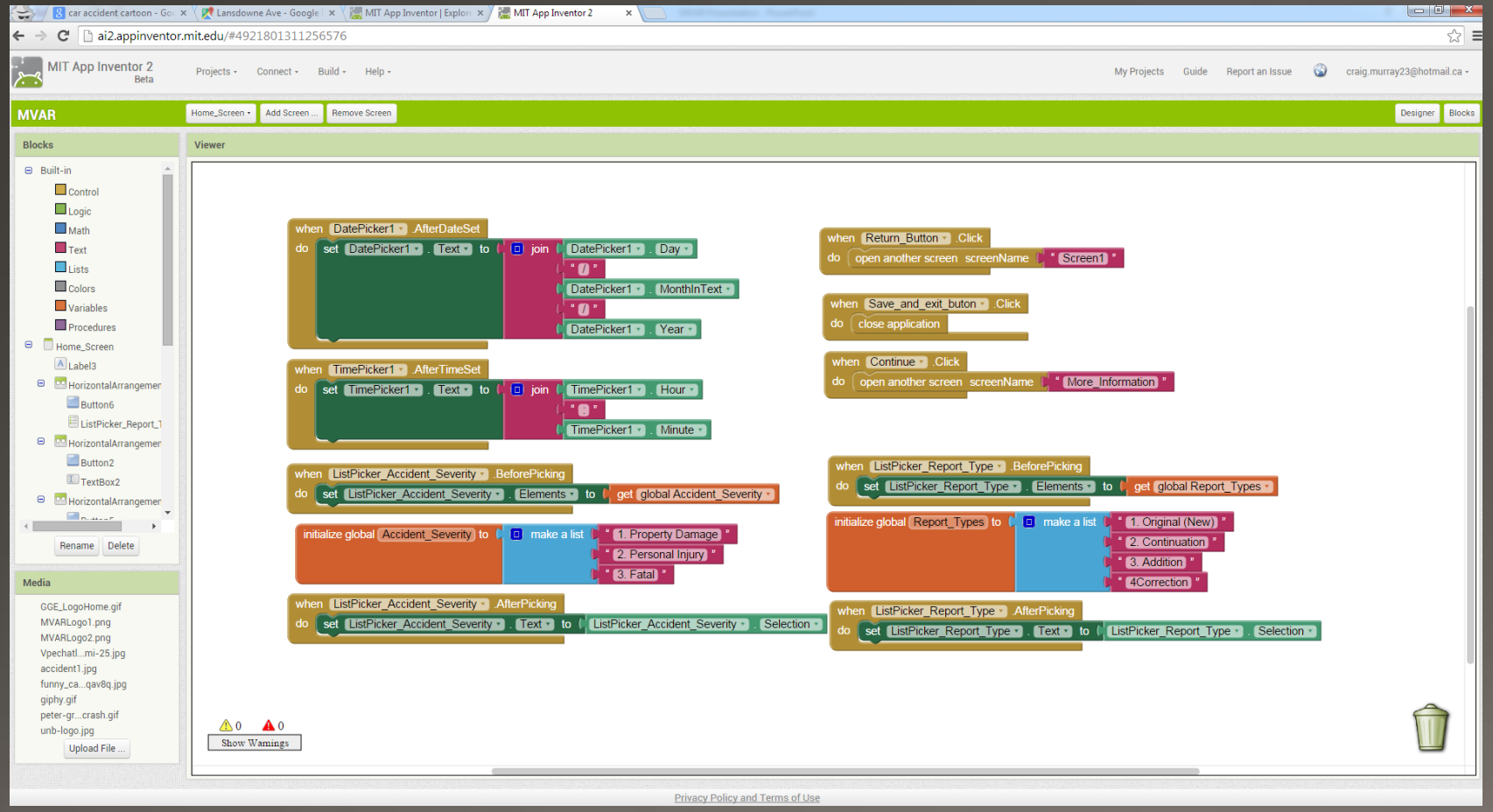
MIT App Inventor 2

- Designer Interface



MIT App Inventor 2

- Block Editor Interface



Cell Phone Location Accuracy

- Assisted GPS (A-GPS)
  - +/- 8m
  - GPS and GLONASS systems
  - Uses hybrid method to speed up initial location
- Wi-Fi Positioning
  - +/- 74m
  - Uses wireless access points and signal intensity
- Network Positioning
  - +/- 600m
  - Triangulation from known precise locations of towers and signal strength

Summary

Benefits

- Fewer sources of error
- A-GPS Accuracy is superior
- No Redundancy – Spatially referenced Reports are ready for the GIS

Limitations

- Security (Encryption)
- WGS84 Datum may not be useful

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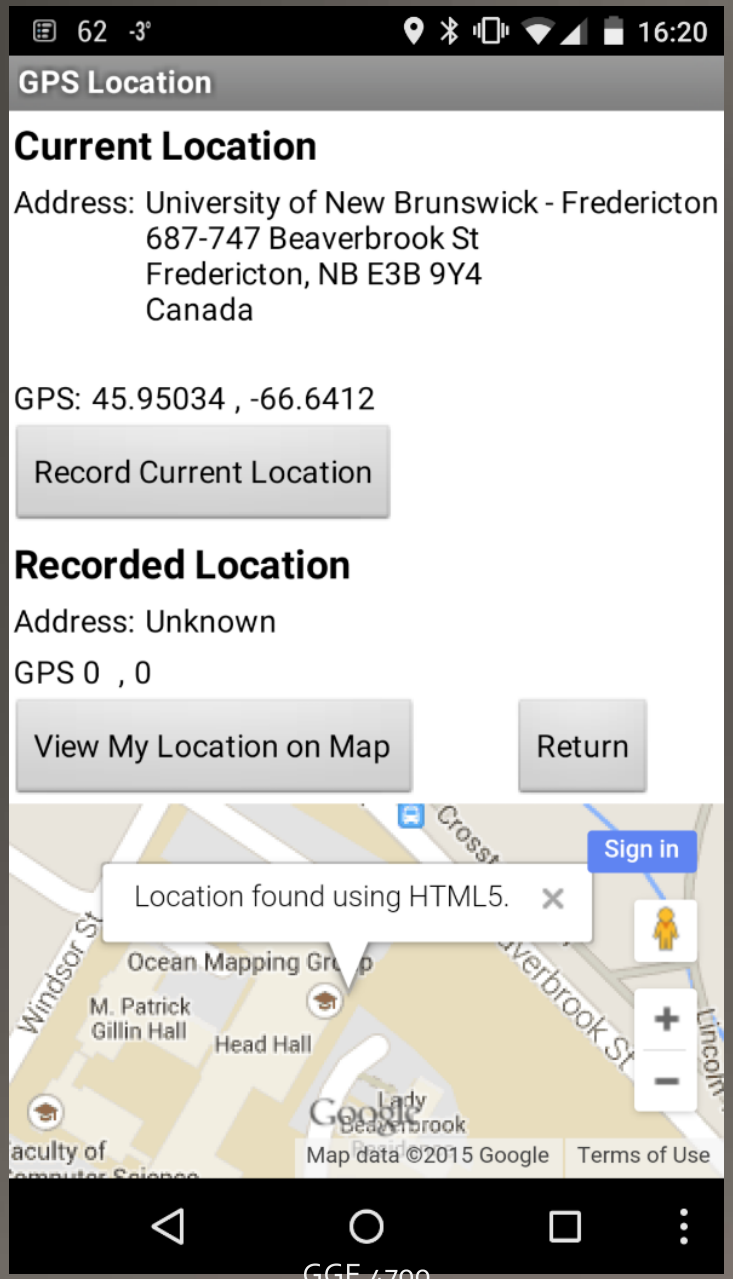
- S/Sgt. James Bates
- Cpl. Rick Younker


62 -3°
16:20
GPS Location
Current Location
Address: University of New Brunswick - Fredericton
687-747 Beaverbrook St
Fredericton, NB E3B 9Y4
Canada
GPS: 45.95034 , -66.6412
Record Current Location
Recorded Location
Address: Unknown
GPS 0 , 0
View My Location on Map
Return
Location found using HTML5.
Sign in
Ocean Mapping Group
M. Patrick Gillin Hall
Head Hall
Lady Beaverbrook
Google
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