GEOSPATIAL WORLD FORUM
15-19 January, 2018, Hyderabad, India

ONE GLOBAL PLATFORM — FOUR KEY EVENTS!

GEOBUIZ SUMMIT
15-16 January, 2018

AI & IOT SUMMIT
18-19 January, 2018

GEO4SDGs
Addressing Agenda 2030
18-19 January, 2018

LOCATION WORLD
18-19 January, 2018

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Safe City Monitoring System
GIS Web Based Application in Crime Monitoring in Malaysia

Geospatial World Forum 2014
Geneva, Switzerland
5-9 May 2014

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Introduction

- Development started in 2010
- Under Government Transformation Programme (GTP). National Key Result Area (NKRA) : Reducing Crime
- Safe City Programme (one of the 55 initiatives)
Introduction - Objectives

1. Crime data sharing Royal Malaysian Police (RMP), Town and Country Planning Dept and Local authorities
2. To capture crime locations onto GIS map in Police Reporting System online via RMP private network
3. Identify crime hotspots and trends
4. Guide the execution of strategic, integrated and efficient measures in combating crime
5. Monitor the effectiveness of crime prevention measures under Safe City Programme
## Introduction- Approach

1. SCMS is designed with GIS Web Application capabilities to allow intranet and internet access;

2. Integrate Geographical Information System into Police Reporting System (PRS) for crime data feeding
   - (PRS is a computerized and centralized system to facilitate the recording of crime incidents and preparation of investigation papers at local police stations)

3. Applications: GIS Platform and user interface to suit the needs of users

4. Now - crime incidents can be located online at participating police stations

5. Full-fledged GIS spatial analysis
1. Web Application capabilities enable SCMS to be accessible via internet by 1,300 current registered users (police personnel and Local Authorities (LA) within Malaysia’s network.

2. Enable centralized crime data development, avoid duplication in data and system development by individual agency


4. System is designed seamlessly between application of GIS software and hardware (server) to achieve optimum performance and to cater high concurrent access by users

5. ArcGIS Server (GIS engine), Adobe FLEX (Graphic User Interface - GUI), Microsoft SQL (Relational Database Management - RDBM)
SCMS : GIS Web application

Integration of GIS crime mapping into PRS

Royal Malaysian Police Headquarters

State Contingents

District Police

Crime Mapping Data Tools

Local Police Station

PRS

GIS, Land Use Data, Analysis and Reporting

SCMS Administrator

Police personnel outside premises

Local Authorities

Internet

Plot the location and crime information on map (coordinate)

Updating Land use and Safe City Programmes by LAs
SCMS : GIS Web application

Enquiry Officer (EO) open PRS

Enquiry Officer (EO) access Data from victim.

Input information from victim. EO access Data Capturing Tool (CDCT) from SCMS Server.

Using CDCT, EO locate crime incident onto digital map. Coordinates registered automatically.

Data attributes of IP and coordinates sent to SCMS server.

Investigation Paper (IP) created.

Data Storage and analysis.

Police Report sent to Investigation Officer (IO).

Site Investigation and case verification. IO verify crime location.

If EO did not register actual crime location upon site investigation using CDCT.

If EO did not register actual crime location upon site investigation using CDCT.

Investigation Paper (IP) created.

Connection to PRS

Connection to SCMS via PRS Network

SOP for crime data capturing and archiving by EO & IO
SCMS enables user to identify and visualize crime hot spots thus understand crime patterns, trends or displacement. Provides valuable information for more efficient and holistic crime prevention actions by all parties.
Output : Repeat Location Finder

Distribution of identified RLF with different range of repeated crime incidents and frequencies in a 50m radius. Differentiated by colours.
Output: Decision support in strategizing police beats and patrolling

Interface priorities are sorted out based on number of stars and on road segment.
Output: Decision support in prioritizing crime hot spot and determining suitable safe city measures

Geo processing analyses determine priority areas and suitability of Safe City measures.

Hotspots Day (7am-7pm)
- Coordinates
  - Robbery without Firearms
  - Gang Robbery without Firearms
  - Snatch Theft

Hotspots Night (7pm-7am)
- Roads
  - Point of Interest

Number of incidents within Hotspots

Intersecting Hotspot area (Day)
- Suitable area
  - Priorities

Intersecting Hotspot area (Night)
Output: Aoristic

Interactive aoristic output indicated in bar graphs on map (hourly within 24 hours).
Output: Timeline

Timeline analysis (line graph) indicating crime patterns on monthly and yearly basis
Outcome and impact: Safe City measures

Street Crimes reduction, comparison based on safe city measures (June-Nov 2010 and June-Nov 2011)
Outcome and impact: Overall crime reduction

Index Crimes

<table>
<thead>
<tr>
<th>Jan-Apr 2011</th>
<th>Jan-Apr 2012</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>56,583</td>
<td>49,881</td>
<td>-6,702</td>
</tr>
</tbody>
</table>

-11.8%

* Index Crimes are classified as:
  • Property Crimes (Theft, Snatch Theft, Vehicle Theft, Machinery Theft, and House Break-In)
  • Violent Crimes (Robbery, Assault, Rape, Murder)

Target: 5% reduction

Street Crimes

<table>
<thead>
<tr>
<th>Jan-Apr 2009</th>
<th>Jan-Apr 2012</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>13,391</td>
<td>7,296</td>
<td>-6,095</td>
</tr>
</tbody>
</table>

-45.5%

* Street Crimes are classified as:
  • Snatch Theft
  • Robbery without Firearms
  • Gang Robbery without Firearms

Target: 45% reduction
Outcome and impact:

- Improve efficiency of Investigation Officers,
- Number of hits increased shows relevancy of SCMS to users
- Expansion to other police stations and local authorities

### Comparison of total Investigation Papers in 2010 and 2011

- **Royal Malaysian Police**
  - 2010: 2382
  - 2011: 5464

### Number of SCMS Accessed

- **Royal Malaysian Police**
  - 2010: 10,426
  - 2011: 3,373

### SCMS Expansion to Local Police Stations and LAs

<table>
<thead>
<tr>
<th>Year</th>
<th>Royal Malaysian Police</th>
<th>Local Authorities</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>10,426</td>
<td>3,373</td>
</tr>
<tr>
<td>2011</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2012</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2013</td>
<td></td>
<td></td>
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<tr>
<td>2014</td>
<td></td>
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</tbody>
</table>
Outcome and Impact: Kuala Lumpur City Hotspots

Year 2010

Year 2011

Year 2012

Year 2013
Outcome and Impact: Kuala Lumpur City Repeat Location Finder

Year 2010

Year 2011

Year 2012

Year 2013
## Moving Forward

1. Migration to a more compatible platform
2. GIS literacy to potential users
3. Open to the public in the future
Smart partnership towards Safer Malaysia

Ministry of Urban Wellbeing, Housing and Local Government
+ Ministry of Home Affairs + Town and Country Planning Dept. + Royal Malaysian Police + 109 local authorities
Thank You