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Implementing Citizen Science in Biodiversity Conservation: EcoSabah - Android Application Reporting Solution for Species Occurrences in Sabah, Malaysia

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birg
Bioinformatics Research Group





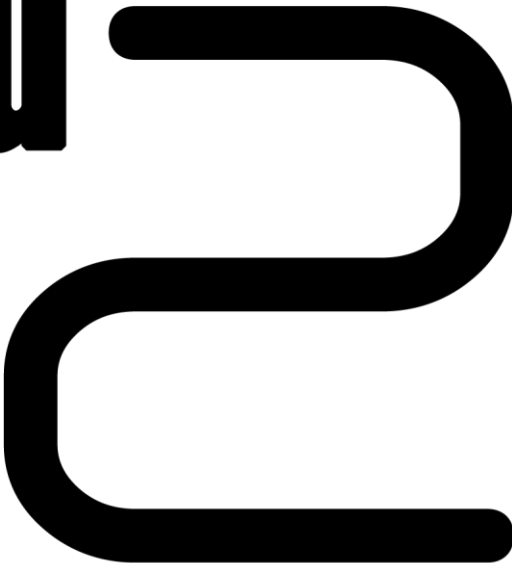
Mapping

Web dev

**Mobile
app dev**

ULTIMATE GOAL

**Out-of-the-box digital pipeline,
complete with website and Android
application**

field  **folder**

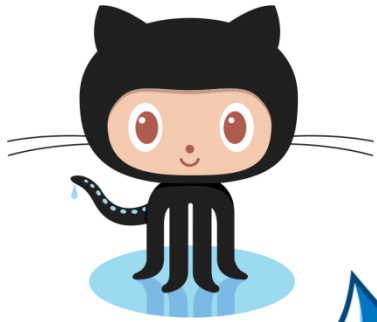
Species ID

Record keeping

Mapping

**Secondary data
mining**

Analysis



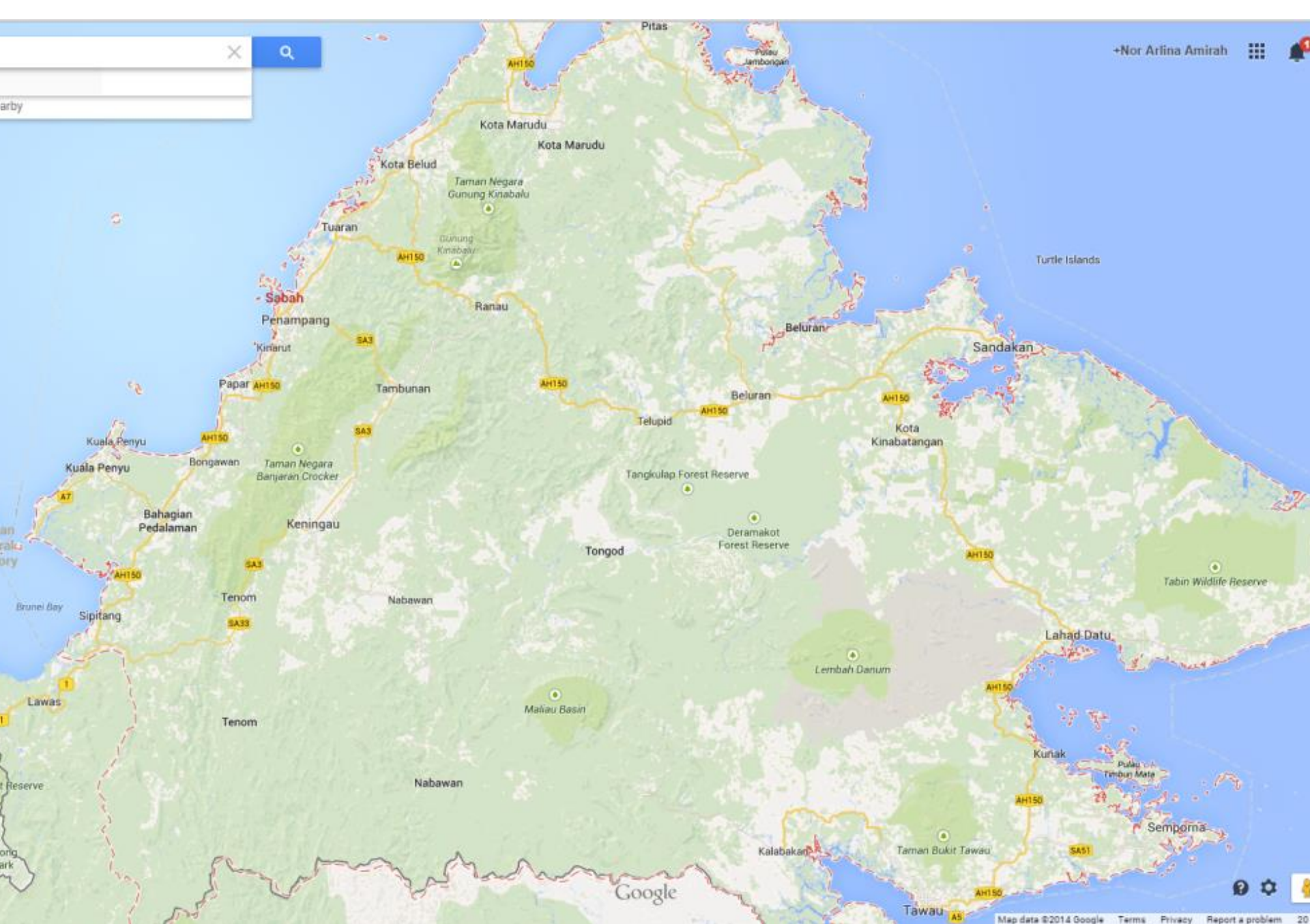
WHAT WE USE?





EcoSabah





+Nor Arlina Amirah



WHAT IS ECOSABAH?

- Prototype of the digital pipeline – based on Sabah biodiversity data
- Can be used to record occurrences during field survey
- Runs on Android, server end based on Drupal

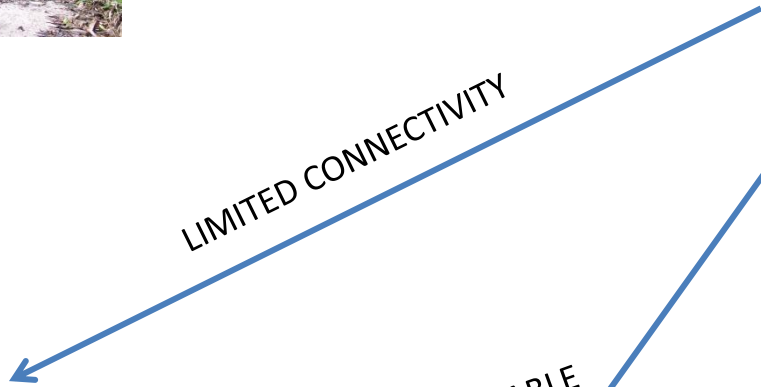


FIELD
WORK

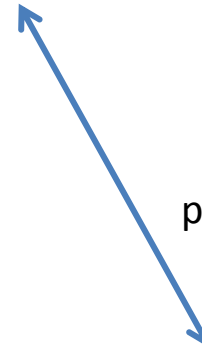
- Species ID
- Occurrence Reporting



Local DB on
device



SERVER



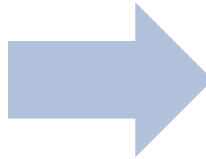
public view





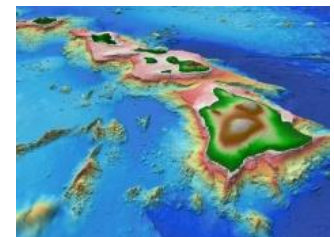
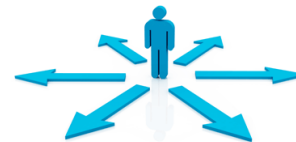
DATA RECORDING

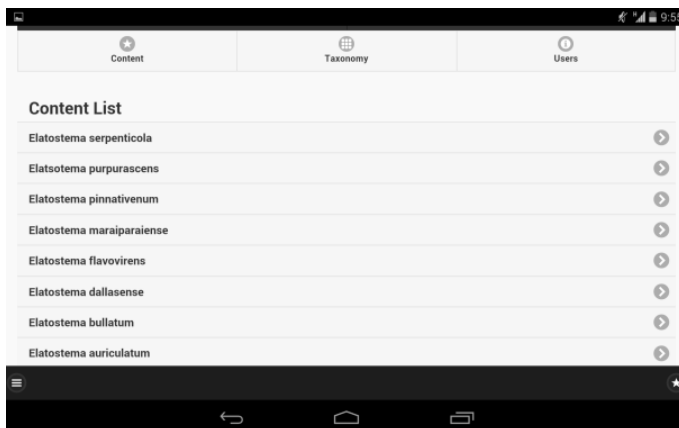
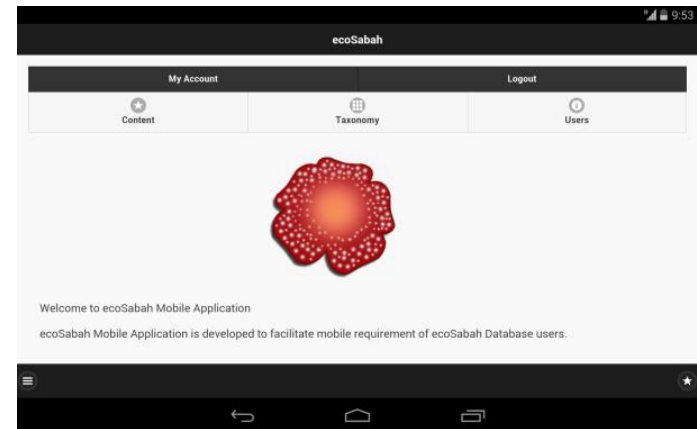
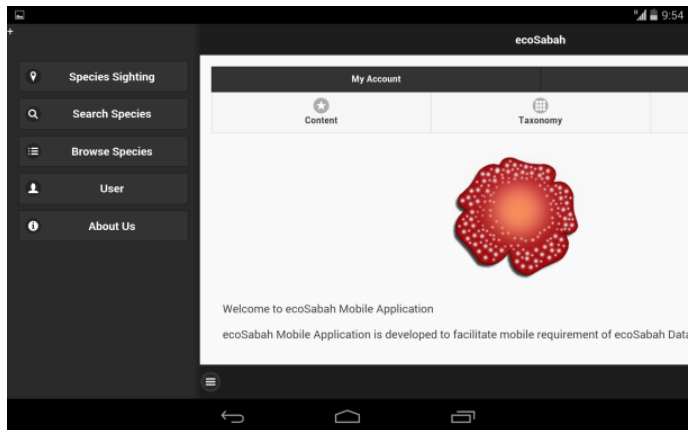
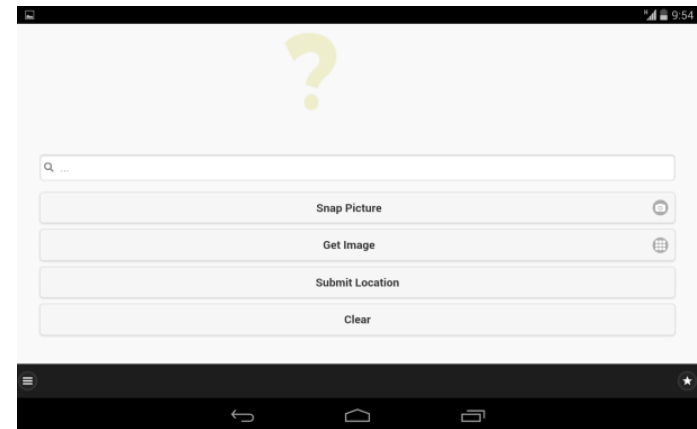
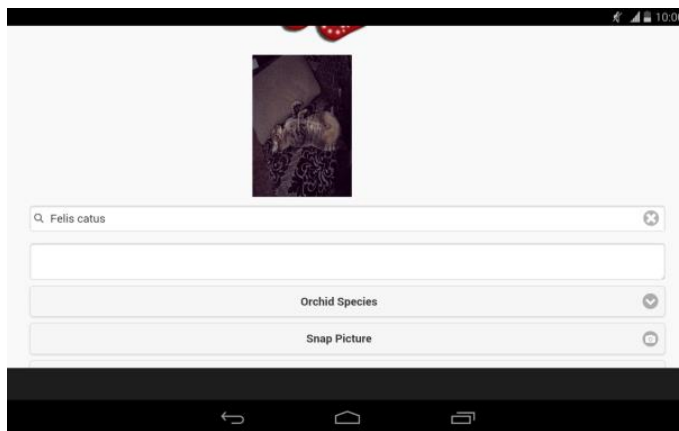
- Camera
- Species name retrieval
- Notes
- Geolocation



SERVER SIDE

- Mapping
- **Twitter Mining**
- Administration panel
- Report Generation





UNDERTAKINGS

- ✓ Geolocation
- ✓ Offline usage
- ✓ Web information retrieval
 - RESTful API
- ✓ Basic species ID
 - based on dichotomous key
- ✓ CRUD operations
 - Create, Read, Update, Delete on mobile devices

UNDERTAKINGS

- Mobile app interoperability – iOS, Windows, Blackberry
- (Super) fine location information (elevation, waypoints, map layers)
- Species ID using image recognition
- Data sharing
- Barcode tagging for samples
- **Crowdsourcing – citizen science**

CITIZEN SCIENCE

- Conservation / education
- Twitter for data input
 - i.e. hashtags = #ecosabahorchid, #ecosabah
 - Users without app can contribute

POINTS TO PONDER..

- Standards – Darwin Core, Dublin Core, ontology? Create new standard?
- Terms – how to describe observations?
- **Citizen science – participation, security, information verification, limits**

POINTS TO PONDER..

- Existing database integration
- Infrastructure – Cloud or Distributed?
(real-time data mining consumes
MASSIVE space and power)

FOR MORE INFORMATION

EcoSabah –

<http://biodiversity.fbb.utm.my/ecosabah/>

Other related projects:-

Phyknome- <http://mapping.fbb.utm.my/phyknome>

MyRice- <http://mapping.fbb.utm.my/myrice>

J-Marine- <http://mapping.fbb.utm.my/jmarine>

Jbiodi- www.jbiotech.gov.my/jbiodi/index.php

iZoo- <http://mapping.fbb.utm.my/izoo>

ERCP- <http://mapping.fbb.utm.my/ercp>

SPECIAL THANKS

UTM

Dr Reed Beaman

Dr Peter Azberger

PRAGMA members

THANK YOU!
QUESTIONS?

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