Methodology

Pre-Field Mapping
- Workshop & Brainstorming
- Data Model
- Creating ODK forms
- Pre-Field Mapping Surveys

Field Mapping
- Height Measurement
- Diameter Measurement

Post-Field Mapping
- Data Quality Assurance
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## Big Trees Mapping

<table>
<thead>
<tr>
<th>key</th>
<th>values</th>
<th>comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>geopoint</td>
<td>&lt;coordinates&gt;</td>
<td>GPS coordinates at the tree stem</td>
</tr>
<tr>
<td>tree_species</td>
<td>&lt;neem&gt;</td>
<td>Species of the tree</td>
</tr>
<tr>
<td></td>
<td>&lt;mango&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt;palm&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt;avocado&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt;ashok&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt;flamboyant&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt;acacia&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt;other&gt;</td>
<td></td>
</tr>
<tr>
<td>tree_health</td>
<td>&lt;healthy&gt;</td>
<td>Condition of the tree</td>
</tr>
<tr>
<td></td>
<td>&lt;slightly_damaged / sick&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt;severely_damaged / sick&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt;dead&gt;</td>
<td></td>
</tr>
</tbody>
</table>
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<table>
<thead>
<tr>
<th>Tree Mapping</th>
<th>Smalltrees_PilotMapping_v...</th>
</tr>
</thead>
<tbody>
<tr>
<td>Take a gps coordinates at the tree stem</td>
<td>Take a gps coordinates at the tree stem</td>
</tr>
<tr>
<td>Tree species</td>
<td>Tree species</td>
</tr>
<tr>
<td>Features</td>
<td>Features</td>
</tr>
<tr>
<td>Group</td>
<td>Group</td>
</tr>
<tr>
<td>Clinometer reading</td>
<td>Clinometer reading</td>
</tr>
<tr>
<td>Group</td>
<td>Group</td>
</tr>
<tr>
<td>Picture</td>
<td>Picture</td>
</tr>
<tr>
<td>Group</td>
<td>Group</td>
</tr>
</tbody>
</table>

What is the circumference of the tree at the breast height in (cm)

Is a fork tree? If yes, how many stems does it have?
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Surveys

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Interactive Map
## Summary of Data Collected

<table>
<thead>
<tr>
<th></th>
<th>Big Trees</th>
<th>Small Trees</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Trees</strong></td>
<td>415</td>
<td>146</td>
</tr>
<tr>
<td><strong>Average Height</strong></td>
<td>12.68 m</td>
<td>7.02</td>
</tr>
<tr>
<td><strong>Average Diameter</strong></td>
<td>38.97 cm</td>
<td></td>
</tr>
<tr>
<td><strong>Tree Health</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Healthy</td>
<td>542</td>
<td>14</td>
</tr>
<tr>
<td>Slightly Damaged/Sick</td>
<td>14</td>
<td>5</td>
</tr>
<tr>
<td>Severely Damaged/Sick</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Dead</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>
Challenges

- Lens distortion
- Parallax error
- Eccentricity: highest point visible is not at the center of the tree.
- Unawareness of the project

Lessons Learned

- Permissions
- Team meetings

Recommendations

- Calibration of phone cameras
- Height Measurement
  - Scale up, use photo method; clin to verify
- Diameter Measurement
  - Circumference measurement using tape measure