DATA COLLECTION

Without adequate data, GIS is not very useful. In Uganda today, data collection is hindered by outdated data, unprojected data, linkage of GIS to existing systems, paper form data, institutional data sharing matrix, scale of data and high cost of GIS softwares.

Data collection involves pre-processing which provides the right vision of what the analysis that we want to perform will require from the data that we need. While post processing phase may include editing and removal of capture errors.

Data collection is a vital part of infrastructural development, from building roads, communication systems to construction of electricity networks.
DATA CAPTURING TECHNIQUES

DIGITIZE - This involves digitizing existing data found on previously printed maps, resulting in vector or raster data as a base for further analysis.
LiDAR technology (Light Detection And Ranging) –
This technology uses a source of light, normally laser, to measure distances and angles. Used in multiple fields, like archaeology, geology, meteorology, etc.

PHOTOGRAMMETRIC –
Photo interpretation with a high level of accuracy.

REMOTE SENSING.
This involves different types of sensors attached to satellites that provide imagery with an accuracy and resolution.

SURVEY METHODOLOGIES.
This involves use of GPS as the preferred tool to geo-locate features like land surveying.
EXISTING FIELD PAPER DATA CAPTURING

Books are used to record information in the field for example way point numbers defined in the gps receiver.
A template is configured and uploaded into the GPS receiver.
PAPERLESS DATA CAPTURING

Mobile GIS softwares for example ArcPad, they provide a platform for development of intelligent tools or applications which are intended to enhance project processes. GPS devices are used to replace manual typing of data.

This centrally hosts applications and data which makes it easy to manage, organize, and integrate geographic data, from existing databases to visualize, analyze, and make decisions.
Using Mobile GIS Software, a template is designed to “translate” the manual paper recording to digital recording.
CREATION OF A DATA COLLECTION FORM

User requirement

Create shapefile

ArcPad Studio

Programming

SOLAR PV SYSTEM VERIFICATION FORM

<table>
<thead>
<tr>
<th>ID OF The Entry</th>
<th>Disbursement Request Number</th>
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</thead>
<tbody>
<tr>
<td>1 REES Name:</td>
<td>10 County:</td>
</tr>
<tr>
<td>2 Customer Name:</td>
<td>11 Sub county:</td>
</tr>
<tr>
<td>3 Model Type:</td>
<td>12 Village:</td>
</tr>
<tr>
<td>4 Guardian/LC:</td>
<td>13 Supplier name:</td>
</tr>
<tr>
<td>5 Relation:</td>
<td>14 Installation date:</td>
</tr>
<tr>
<td>6 Occupation:</td>
<td>15 No. of DNS Installed:</td>
</tr>
<tr>
<td>7 Phone No:</td>
<td>16 Technician Contact:</td>
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<tr>
<td>8 Service Territy:</td>
<td>17 REES contact:</td>
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System Category:

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<td>Model Type:</td>
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<tr>
<td>Guardian or LC:</td>
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</tr>
</tbody>
</table>

Form Properties

Event Script

Dim pForm
Set pForm = ThisFormEventArgs.Object
If (2 = pForm.Mode Or 3 = pForm.Mode) Then
pForm.Fields("REASTAFF").Value = Application
End If
BENEFITS

Advantages
• Time lag is reduced
• Quality Assurance / Quality Control
• Easy production of reports
• Data security is also assured
• Reliable data is collected
• Minimal “human” errors
Lastly, paper and paperless data collection are credible methods to capture data however paperless is more effective in regards to resources and time factors.

Everyday new technology finds it way to the market and GIS is no exception, i.e cloud computing existed since 1960s but it received its debut in 2006 (computer weekly). An article in Forbes, published that 80% of enterprises use the cloud computing strategy.
Rural Electrification Agency Experience

The GIS Unit of REA, has developed a number of templates for different projects for example:

- **PVTMA Solar verification**
- **OBA Verification**
- **Concession monitoring**
- **NORAD subsidy verification**
- **Line inspection for service providers**