Geographical Information System for Power Utilities

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Abstract - GIS, Feeder Manager, CCC, SCADA, HT Network, LT Network.

GJCST-E Classification: *H.3.0*

GEOGRAPHICAL INFORMATION SYSTEM FOR POWER UTILITIES

Strictly as per the compliance and regulations of:

Geographical Information System for Power Utilities

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I. Introduction

The Geographical Information system has been used worldwide for controlling and managing the business process and field operations. It also widely used for automation of the system. In this research we defined the scope of the GIS system in the current scenario and used the same to give maximum input to the current business application.

The major benefit to use GIS will be obtained only after the successful data captured for the entire HT/LT network and all the current electrical consumers. The GIS system gives error free automated inputs to the system for forecasting the future needs related to the electrical network as well as demand. This will generate automated reports to help the engineers to make the system error free and make the system up to date.

Geographic Information System consists of a system for capturing, storing, checking, integrating, manipulating, analyzing and displaying geo data related to positions on the Earth's surface and data related to attributes of the entities/Customers.

It pertains to both vector and raster GIS

This is achieved through GIS mapping to pre-defined scale, generation of intelligence electrical network maps and super imposing them on the land base GIS maps and through customization and / or development of application software.

Feeder Manager – LT option

1. Select Feeder Manager in the Locator Tool drop down.
2. Select the values in drop down DISCOM, Zone, Circle, Division, Sub Division and Sub Station.
3. Select a feeder in feeder List box.
4. Select 'Only LT' radio button.
5. Select any DT in DT dropdown.
6. Click on Find button.
7. This will highlight the features covered in specified LT and the attributes will be displayed in the results panel.

Feeder Manager - Features covered in LT

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Feeder Manager – HT option

1. Select Feeder Manager in the Locator Tool drop down.
2. Select the values in drop down DISCOM, Zone, Circle, Division, Sub Division and Sub Station.
3. Select a feeder in feeder List box.
4. Select 'Only HT' radio button.
5. Click on Find button.
6. This will highlight the features covered in specified HT and the attributes will be displayed in the results panel.

Feeder Manager – HT Trace

Feeder Manager – Both option

1. Select Feeder Manager in the Locator Tool drop down.
2. Select the values in drop down DISCOM, Zone, Circle, Division, Sub Division and Sub Station.
3. Select a feeder in feeder List box.
4. Select 'Both' radio button.
5. Click on Find button.
6. This will highlight the features of specified Feeder covered in LT and HT network and the attributes of selected features will be displayed in the results panel.

Feeder Manager – Both option

a) Electric Trace

This functionality allows you to perform electric trace on electric network, save the trace result, load the trace result and calculate the length of Conductors and cable participating in trace

1. Click on Electric Trace tool
2. Trace tool bar open with option for Electric Trace, Save Results, Manage Results and Calculate Length.

i. Electric Trace

This functionality allow you to perform Upstream, Downstream, Upstream Protective, Downstream Protective, Distribution and Loop trace.

1. Click on Electric Trace tool.
2. Electric Trace dialogue box open.
3. Select a trace type.
4. Select other option depends upon the trace type.
5. Select trace phase.
6. Place flags and barrier on map.
7. Click on Trace button.

8. Feature participated in trace got highlighted in map and displayed in result panel

| G & G Switch (1)			Switch Gear (1)			OH_Conductor (14)			Underground Cable (2)			Bus Bar (2)	
Highlight	Pan	Zoom	Voltage ▲	Motorised ▲	TypeofUse ▲	PhaseDesignation ▲	WorkOrderID ▲	Comments ▲	CreationUser ▲	NormalPostion_A ▲	NormalPostion_B ▲	NormalPostion_C ▲	DateCreated ▲	Dat
▷	✋	🔍	11 KV	No	Line Sectionalizer	RYB		on pole 12		Closed	Closed	Closed		
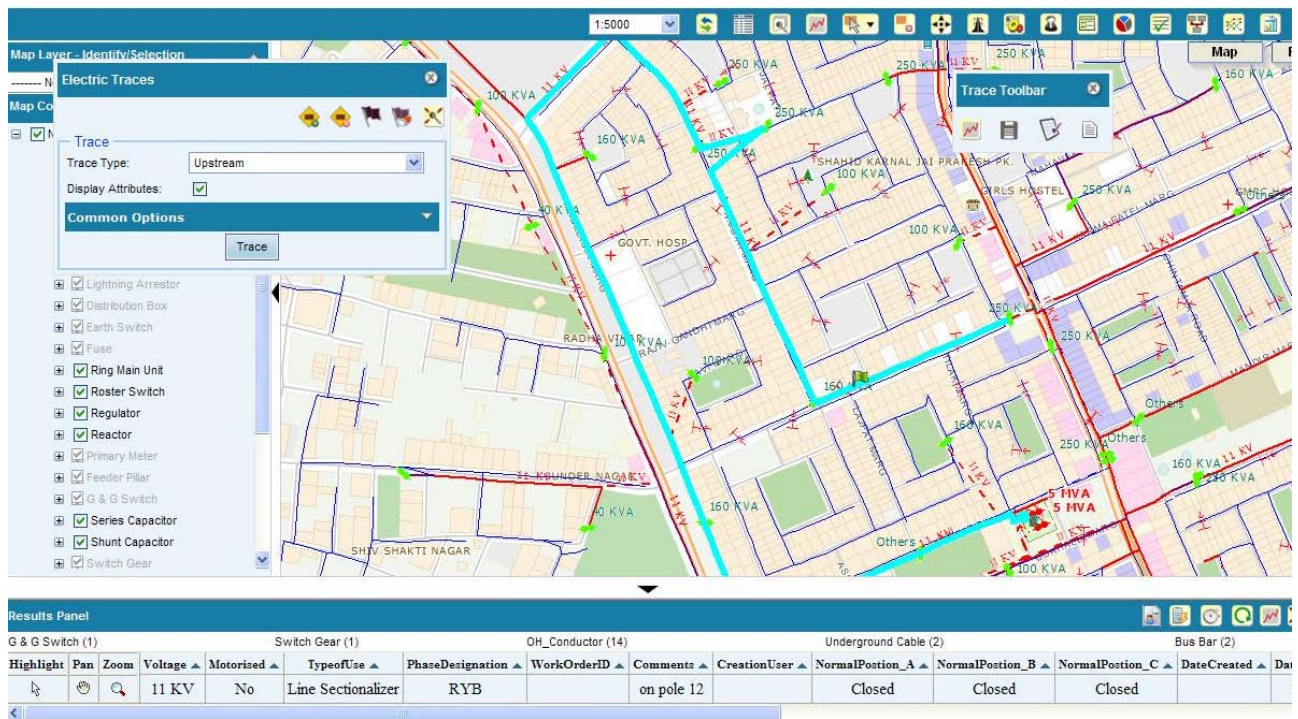
ii. *Save Results*

This functionality allow you to save the trace result with flags and barriers.
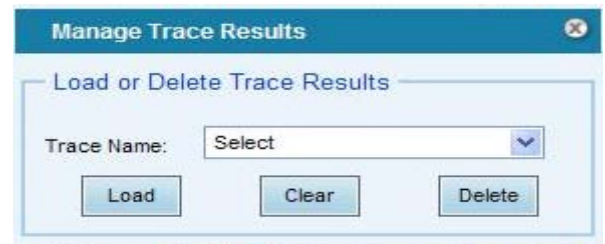
1. Perform Trace
2. Click on save results
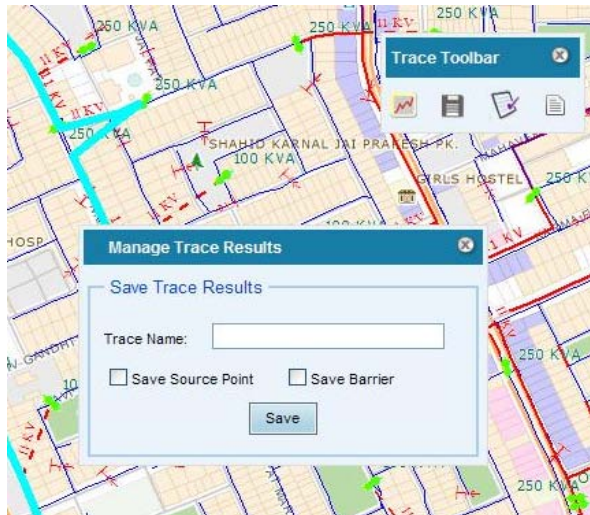
3. Enter Trace name.
4. Select any of the option 'Save Source Point' and 'Save Barrier'
5. Click on save button.
6. Trace result got saved

   iii. *Manage Results*

This functionality allows you to load the saved trace result.

1. Trace result should be saved.
2. Click on Manage Results.

3. Select a Trace Name from Trace Name drop down.
4. Click on Load button.
5. Trace result got highlighted in map.
6. Click on Clear button.
7. Trace result got cleared from map.
8. Click on Delete button.
9. Confirmation message pop up.
10. Click on Ok button.
11. Selected trace result got deleted.

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