

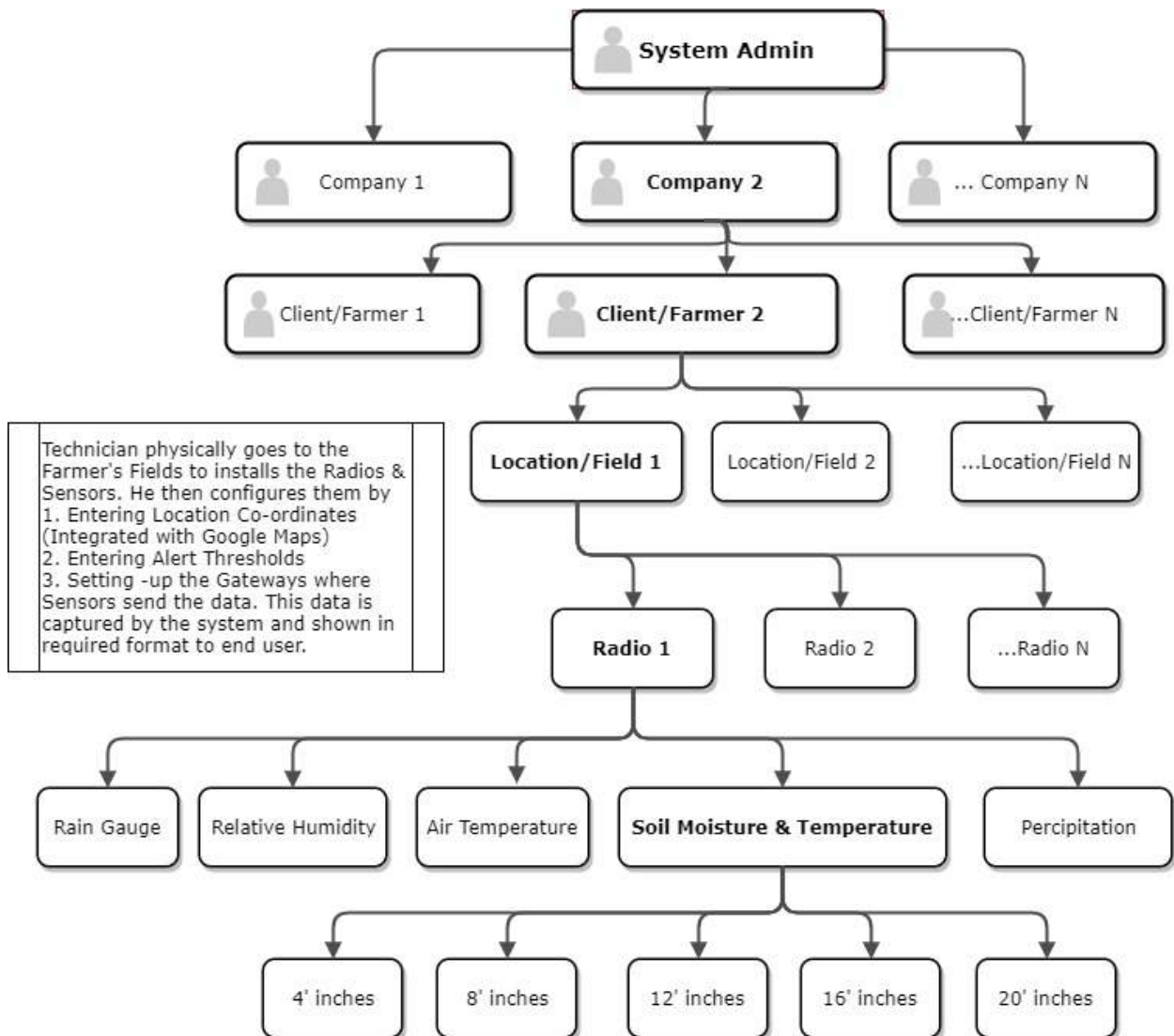
Digital Farming - Sensor Tracking & Reporting System

Developed by www.TeNetSoft.com

Overview: System Receives Information/Alerts from Sensors – which can be accessed by Farmer on a mobile device, laptop, computer OR via E-mail & SMS.

The data is received in Real time and Farmer can get a up-to-date information about their agricultural fields from anywhere in the world & can initiate immediate corrective actions for Alerts.

Hi Level System View



Main System Entities

1. System Administrator
2. Company Administrator
3. Technician
4. Farmer/Clients
5. Fields/Locations
6. Radios
7. Sensors
8. Gateways

System Administrator: Performs the following tasks

1. Add/Modify/Delete Companies in the system.
2. Add/Modify/Delete Various Soil Types
3. Add/Modify/Delete Various Crop Types
4. Add/Modify/Delete Types of Graphs and its settings
5. Can the monitor the health of the whole system across different company accounts.

Company Administrator: This section is for Companies who use the system. Each Company can have multiple Clients/Farmers under them.

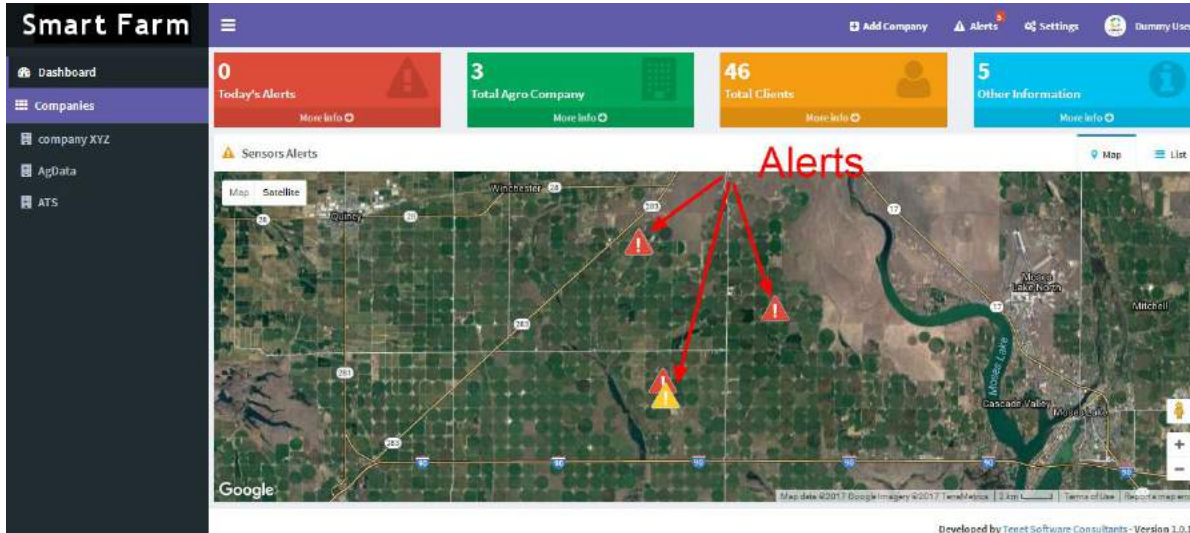
Technician: Is the link between Companies and Clients/Farmers and performs the following tasks

1. Physically installs the Radio at a location.
2. Enters the Map Co-ordinates of the Radio in the system.
3. Configures the Gateway so that Sensors attached to the radio start transmitting the data to the gateway.
4. Enters the “Threshold values” for Sensors so that the system can send alerts when the thresholds are reached.

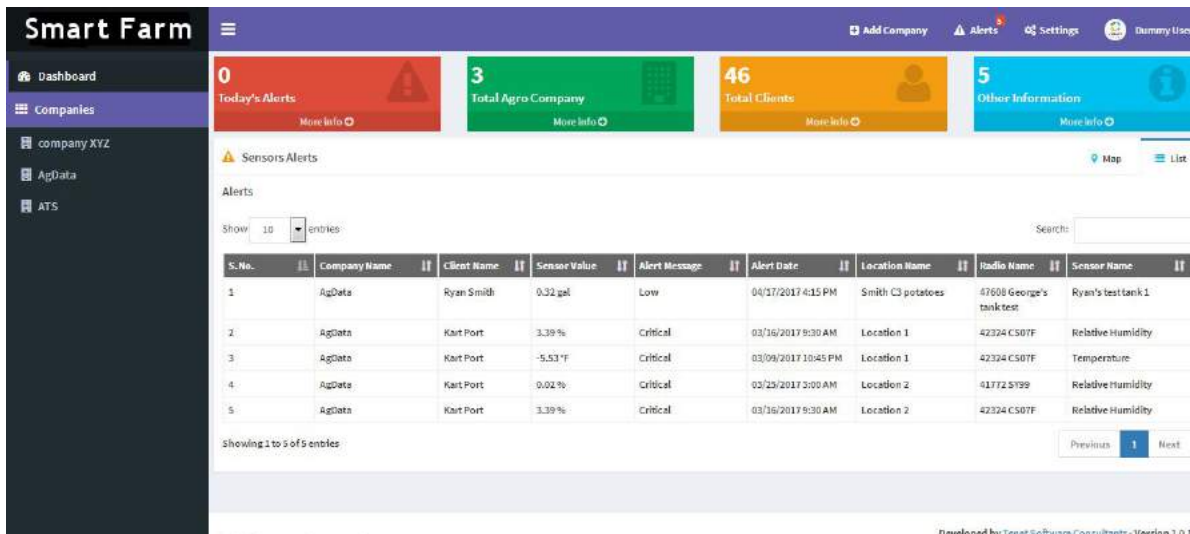
Farmers/Clients: Companies have multiple Farmers/Clients under them and these Farmers/Clients have multiple Fields/Locations where Radios are installed.

System Screenshots with summary

Main System Dashboard: It shows various details like Companies list in the Right Navigation and Sensor “Alerts” on Google maps



Alerts Shown in List Format



Gateway/Radios/Sensors list is shown in the Right Navigation



Section to Manage Settings like: Company, Soil, Graph & Radio

The screenshot shows the 'Soil, Graph & Radio Settings' page for 'AgData Company'. It includes fields for Company Name, Address, Contact Person Details, and Company Account Details. A table at the bottom lists alerts with columns for S.No., Company Name, Client Name, Sensor Value, Alert Message, Alert Date, Location Name, Radio Name, and Sensor Name.

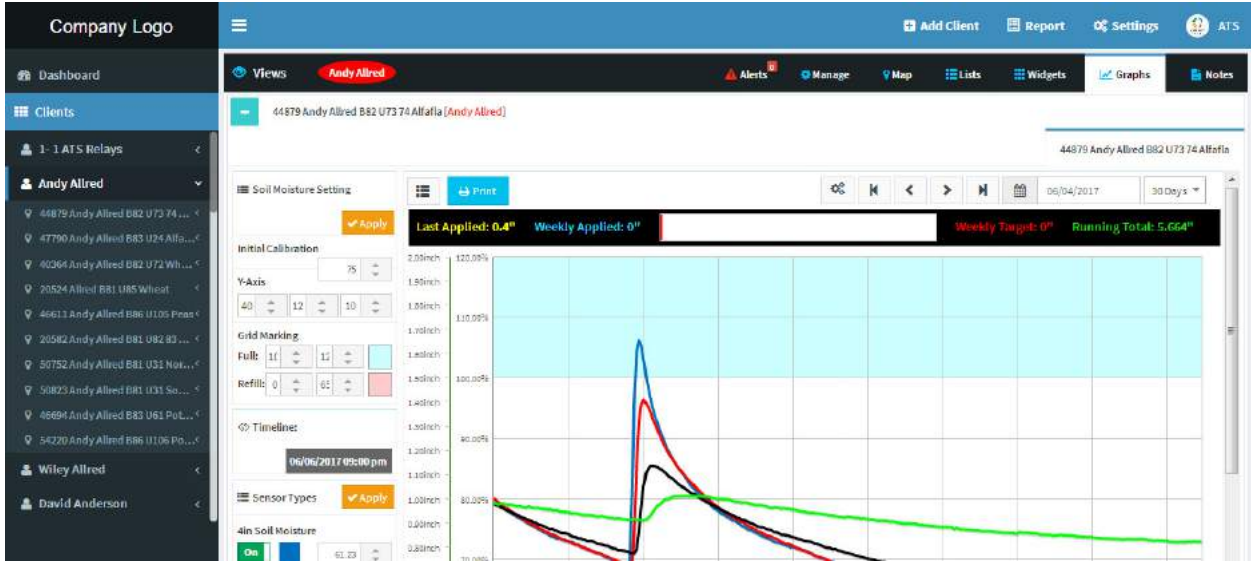
S.No.	Company Name	Client Name	Sensor Value	Alert Message	Alert Date	Location Name	Radio Name	Sensor Name
1	AgData	Ryan Smith	0.32 gal	Low	04/17/2017 4:15 PM	Smith C3 potatoes	47608 George's tank test	Ryan's test tank 1
2	AgData	Kart Port	0.02 %	Critical	03/25/2017 3:00 AM	Location 2	41772 SY99	Relative Humidity

System shown the data in various formats like

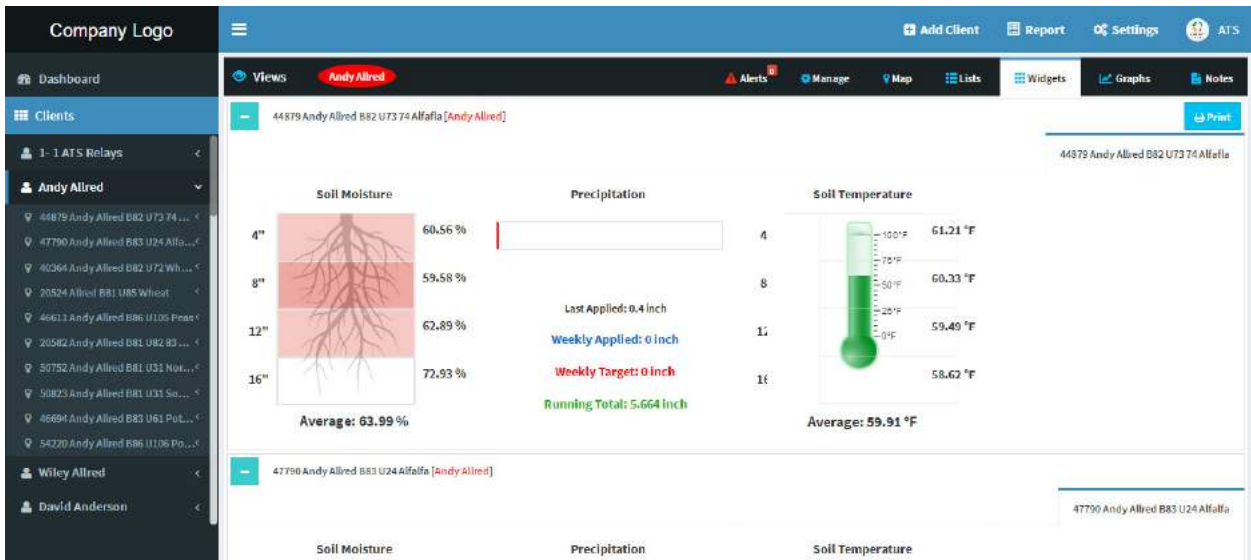
- Graph
- Widget
- Map
- List
- Notes

Graph Format: Sensor Data is shown in Graph Format with various Graph Controls like:

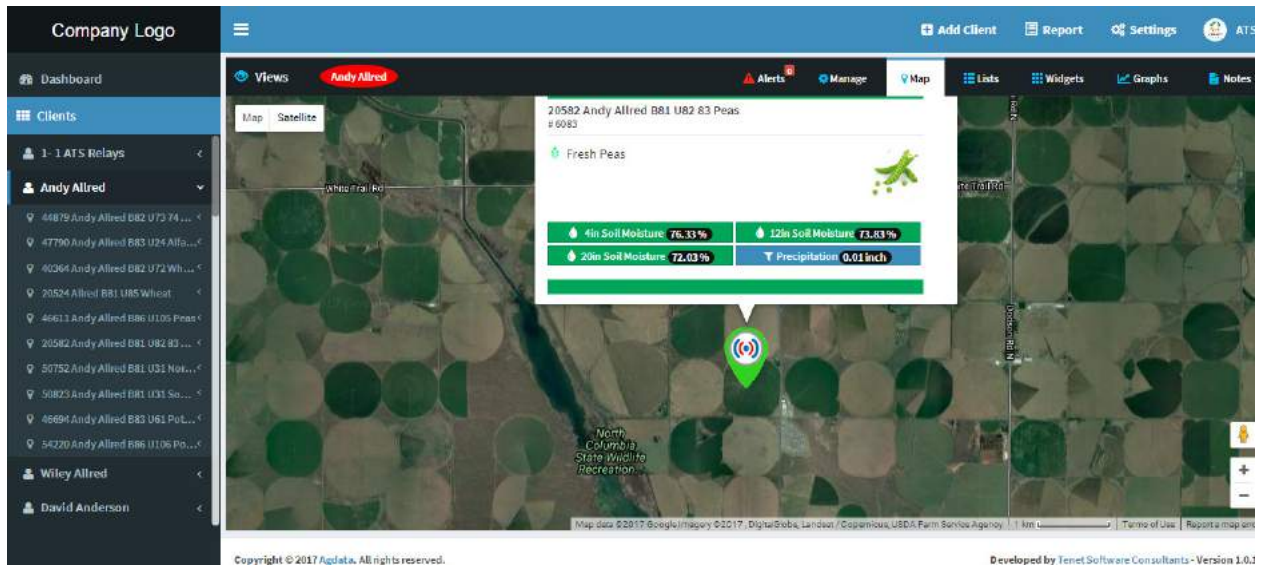
- Administrator can edit the Graph Time period from 6 hours, 1 week, 1 month etc.
- Change X & Y Co-ordinates, Change Starting and Ending points, Edit colors.
- Turn On/Of Various a particular Sensor Input on Graph
- Highlight Grid Markings



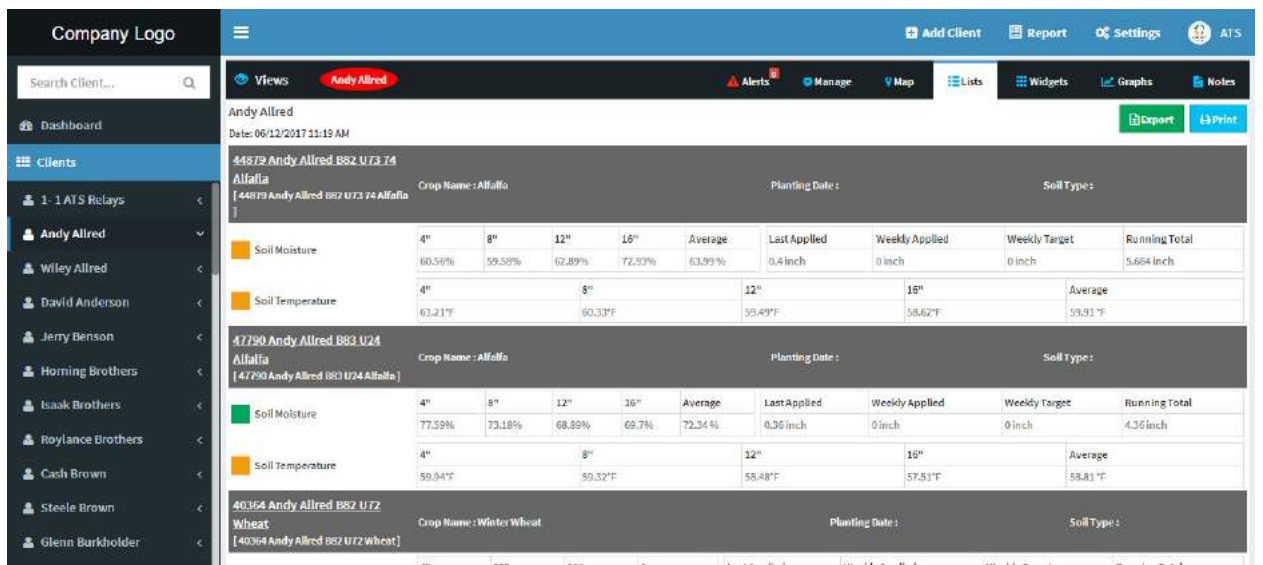
Widget Format: Sensor data from Soil Moisture, Precipitation & Soil Temperature is shown in Widget Format. The widget colors will change if readings exceed threshold values entered in the backend.



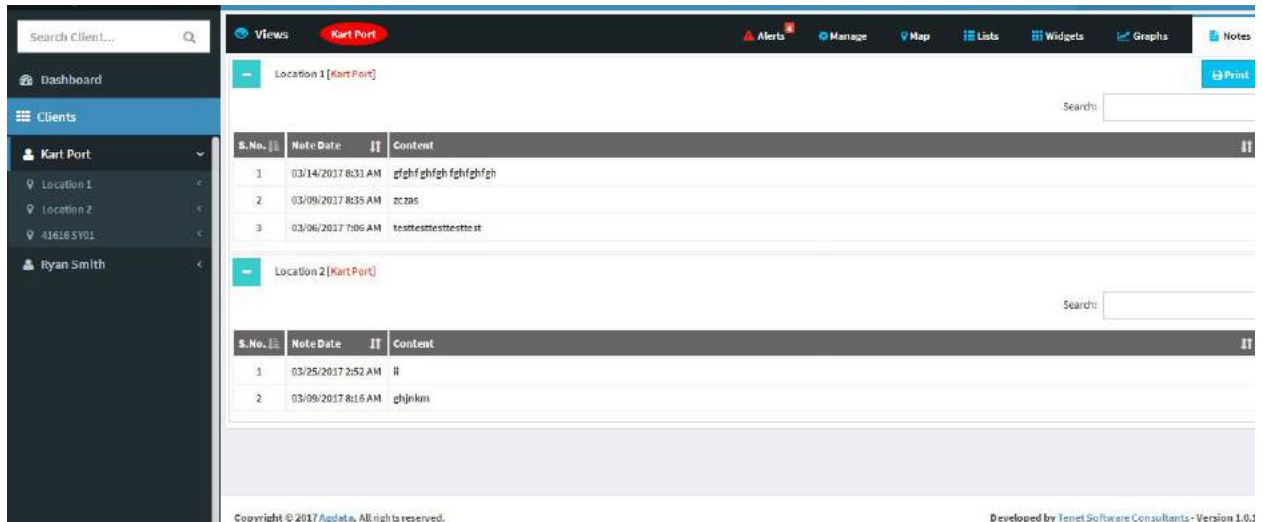
Map Format: Integrated with Google Maps and show the Crop & Sensor details.



List Format: The list view displays the latest values of the sensors as text. The data is displayed location wise.



Notes Format: This view displays the notes set up by the farmer for each location. Farmer can write in notes regarding crops, irrigation and other details per location.



The Managers and Farmers have their individual logins as well and can view the dashboard of their assigned locations.

Future System Enhancements

Use in other Sectors: The same technology & concept can be implemented for any Corporate OR Non Profit in Sectors like Construction OR Manufacturing. Sensors can be programmed to receive & track any kind of values & parameters. They may include Environmental or Natural readings to track the size of a lake or flow of a river OR these some parameters may be entered manually too!

Blockchain: System can be enhanced to Blockchain model to leverage the benefits like as secure and immutable data which Blockchain technology offers! Plus it can be extended to other uses like

1. Blockchain farming will track the whole journey of food - from sowing to dinner table with detail like which minerals and fertilizers were used in the crop and how it was grown!
2. Banks and Financial Institutions are integrated & use this system to calculate Crop Insurance Premium – i.e. Premium of a farmer who quickly & successfully neutralizes a System Alert will be lower than the one who doesn't take any action on a System Alert!

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