



Automatic Irrigation Water
Management Controls

Closing the Loop on
Irrigation Automation



sustainability

[*suh-stey-nuh-bil-i-tee*]

noun

1. Environmental Science. The quality of not being harmful to the environment or depleting natural resources, and thereby supporting long-term ecological balance.

Technology can help...



Environmental Stewardship
Reduce Labor Costs
Save Power/Fuel

A close-up photograph of a person's hand holding a bunch of golden rice stalks. The background is a blurred field of green rice plants. A semi-transparent circular graphic is overlaid on the right side of the image, containing text.

Environmental Stewardship

*Use less water by cutting waste
Up to 50% savings with better
Management.*

Reduce labor & equipment costs

Fewer visits to the wells

Remotely Monitor

- Pump Status
- Soil Moisture
- Fuel Levels
- Maintenance Hours

aQuarius
FARM CONTROLS
User: Sullivan Farms Level: Black Ops

	Name	ID	Service Hours
1	Rock House North 1 (31 Dump E)	5117898	254.5
2	Behind Shop	5123117	103.2
3	Behind Shop SE	5120437	94.2
4	Berry NE #1	5117960	113.4
5	Berry NW #1	5117970	97.8
6	Berry NW #2	5117776	39.3
7	Berry NW #4	5118218	109.1
8	Berry S #2	5117966	21.5
9	Across RR	5118228	38.9
10	CAE #13 East	5117919	270.4
11	CAE #15	5117735	0.0
12	CAE #5 West	5117927	304.3
13	CAE #5 East	5117892	96.2
14	CAE #8	5117925	278.5
15	CA NE #1	5123230	54.7
16	CA NE #6	5119878	21.6

Save Power/Fuel/Nutrients

Only run when needed

- Stop pumping tailwater
- Shut down when demand is reached
- Shut down if rain comes.
- Up 50% cut in Fuel
- Reduce nutrient loss due to run off.



Efficient Pump Control

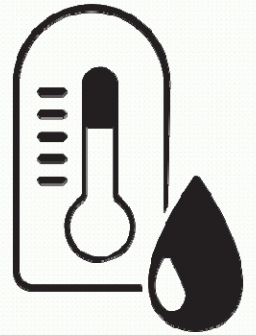


- Base flow
- Flow optimization
- Install flow meter for real time feedback

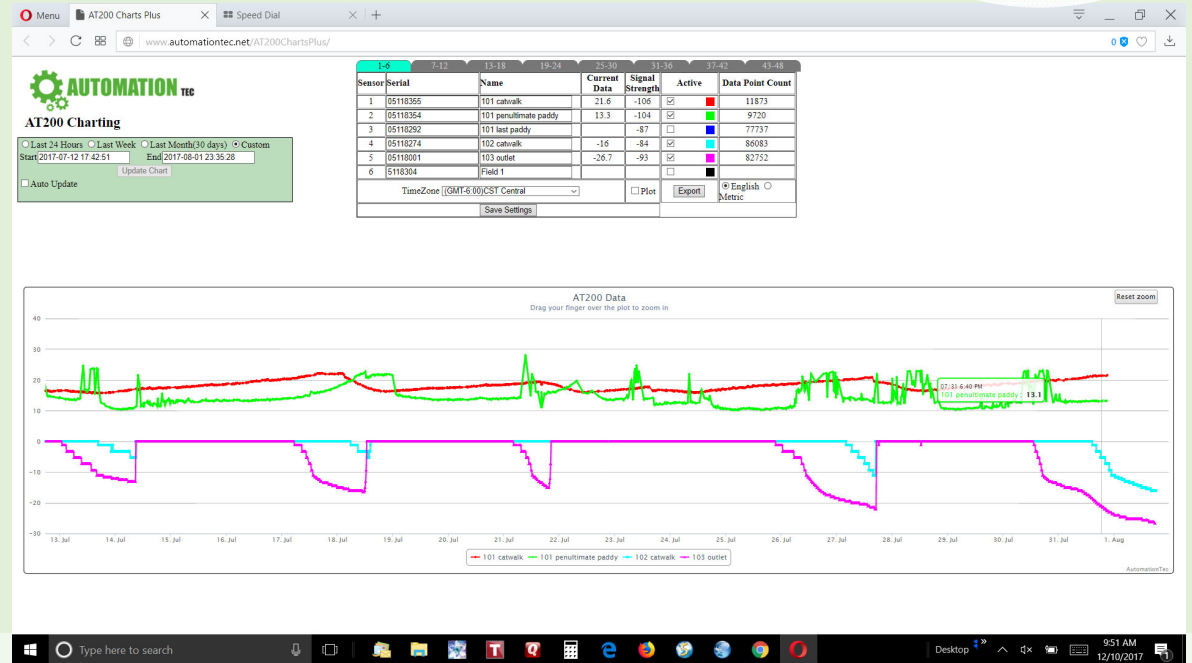




Telemetry



“One accurate measurement
is worth 1000 expert opinions”
– Admiral Grace Hopper



Telemetry

- Flow Metering
- Weather Station
- Water Level
- Soil Moisture
- Soil Temperature

Up to 5 mile range from Hub





Get the data to the cloud

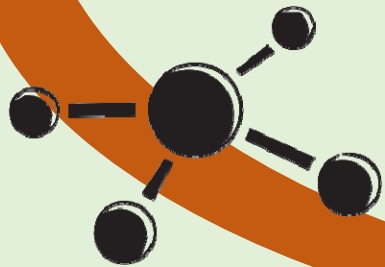
Cellular



Local Network



Let's use all that pump
control and telemetry
technology...



and Close the Loop

Begin with the simplest scenario

Start the pump based on:

- Low water level
- Low soil moisture
- Pivot Start Command



...the simplest scenario

Then stop the pump based on:

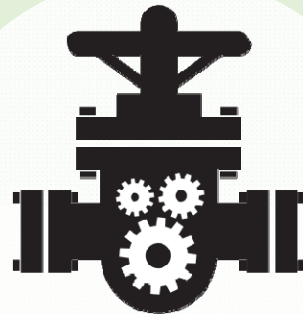
- Desired water level
- Desired soil moisture
- Desired Pivot Position



Now let's kick it up a notch!

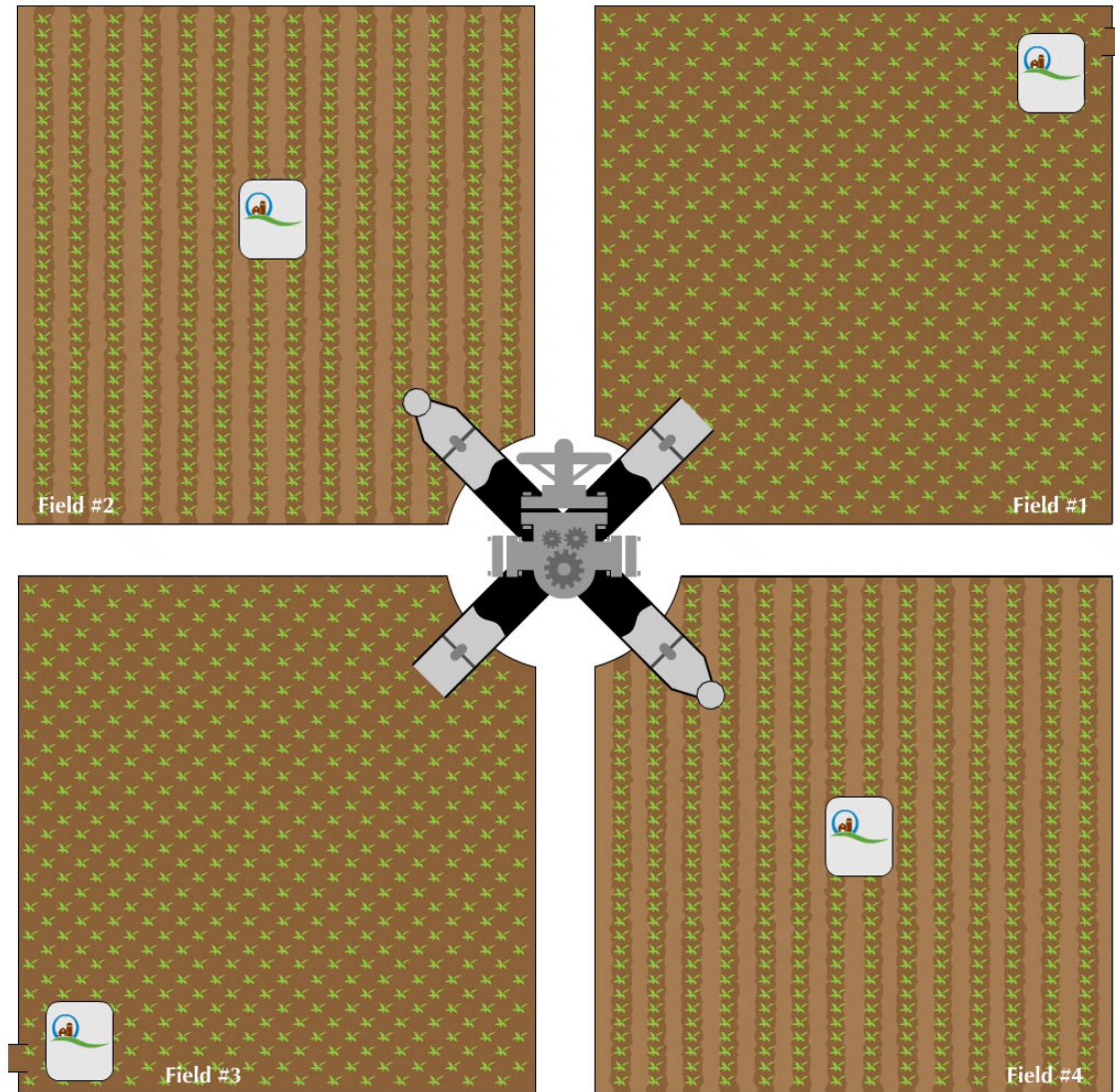
One Pump
Multiple fields
+ Valve Control

Instead of shutting down, rotate to another field. Open another valve and close this one.



In The Field

- Single well pump, multiple fields
- Field 1 – rice paddy, aQWaterLevel, Valve Control
- Field 2 – soybeans, aQSoilMoisture, Valve Control
- Field 3 – rice paddy, aQWaterLevel, Valve Control
- Field 4 – soybeans, aQSoilMoisture, Valve Control





Applied Digital Inc.

In business since 1985

We are the designers & manufacturer of aQuarius Farm Controls, we have a passion for this project. And will be here for another 35 years.

