

Precision farming

The Allesbeste perspective

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What is precision farming according to Allesbeste?

- We believe that you must collect and use as much data as you can for various reasons such as increases to productivity, efficiency and solving problems you might not even know exist

But wait, I am only a small scale farmer? So this must not be applicable on me?

- This we think is a common misconception, small scale farmers think that precision farming is something only larger farming business do / can afford to do, and that at their small scale it is not cost effective to invest in software and hardware solutions.

This could not be further from the truth!

- Small/smaller scale farmers are supposed to be the ones, that are at the forefront of increasing productivity with any tools they have at their disposal, bigger farmers can survive with **inefficiencies** here and there because they have economics of scale that will help them offset the costs of inefficiencies.

Current misconceptions

- It's too expensive
- It's too complex
- You have too many systems to manage and end up managing nothing
- That it's only for large commercial farmers

“It’s too expensive”

- Well maybe a long time ago this would have been a very true and valid argument to make, the costs of buying the components, building the prototype and hiring someone with the technical know how would have come at a very significant cost, this is no longer the case.

“It’s too complex”

- There are many platforms that allow anyone with a bit of technical knowledge to develop a system that would have been previously deemed as too complex.
- Also the internet is full of resources to help you should you hit a bump in the road.

“You have too many systems to manage and end up managing nothing”

- This can easily happen when you have a whole array of different systems, each doing the single thing for what it was invented to do.
- Instead of receiving data and having to react upon it yourself, you can now be pro-active and have your systems talk to each other.

“That it’s only for large commercial farmers”

- As I have said previously, smaller scale farms should be run more efficiently to be able to stay financially viable.

How do I implement this?

- There are many tools that you can use to do very interesting things at a very low cost, to illustrate my point I have built a small example using a small microcontroller known as an Arduino (I have a display of all the items at the table with me if anyone wants to learn more)

What can an Arduino / controller do?

- I will from here on refer to the Arduino as a controller because essentially that is what it is.
- Well anything that you want it to, the sky is the limit.
- You can connect various sensors to the controller
- You can teach your controller to behave in a way that makes it smart.

Sensor examples

- Temperature
- Humidity
- Ground moisture
- pH
- Load (Weight load sensor)
- Different types of gas
- etc..

Lets have a look at a quick
demonstration



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But how do I read and analyse the data?

- This can sometimes be the most frustrating problem to have, because you have this mass amounts of data but it means nothing if its only in text form.
- Depending on what needs to be done, one solution would be to have your controller talk to 3rd party services that give you an easy to way of understanding and viewing of what is happening.

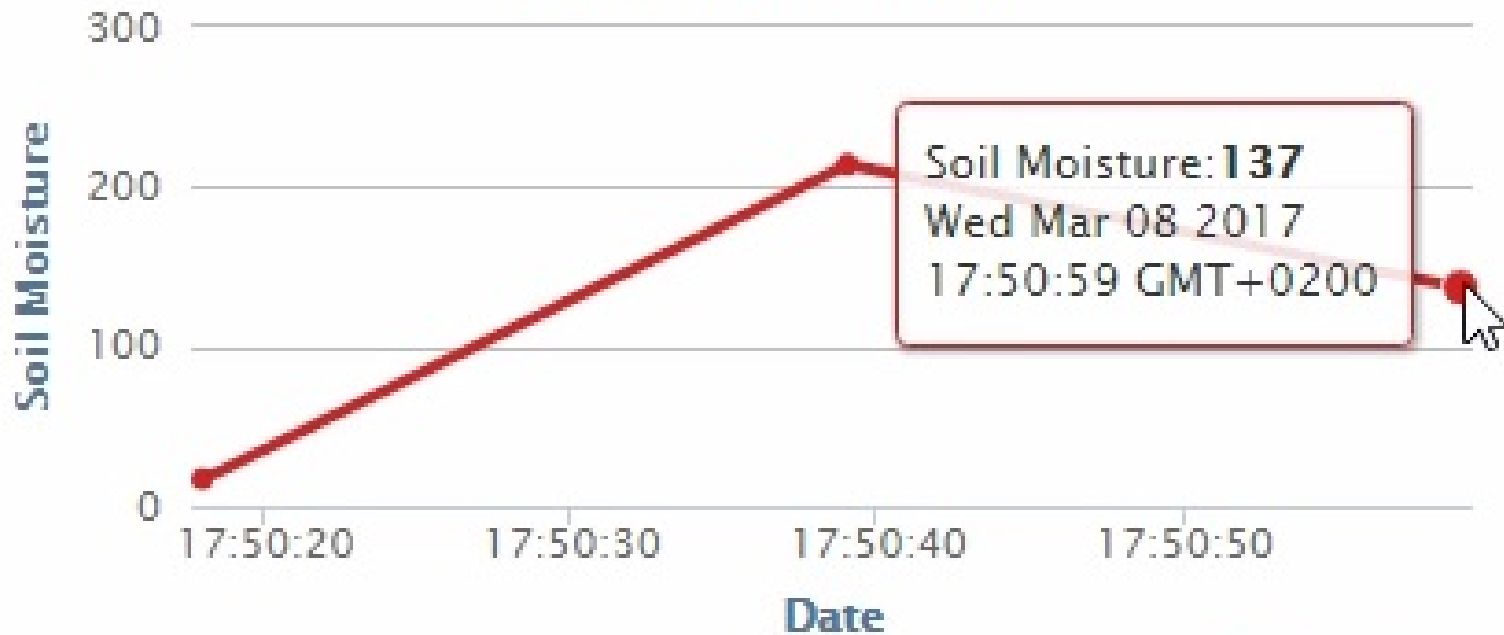
Example of a 3rd party service

- For my demonstration I used a service called Thingspeak, I had my sensor send all its data to them and they then give you the tools to customize how that data is presented

Field 1 Chart



Soil moisture level



ThingSpeak.com

But what about other integrations?

- You can have your controller talk to a wide variety of services, like Twitter, I have made my controller so that every time it switches the pump on, it should send me a tweet

What else is possible?

- You can embed RFID tags into your trees to allow you to record individual tree records
- You can have automated clocking in of farm workers, based on their location
- You can track progress across various processes with sensors and data
- Machine learning, you can have machines that learn themselves how certain tasks should be done
- You can monitor weather forecast information and have your controller ask you whether or not you still want to irrigate.
- And much more.