The farming industry will become arguably more important than ever before in the next few decades. The world will need to produce 70% more food in 2050 than it did in 2006 in order to feed the growing population of the Earth. To meet this demand, farmers and agricultural companies are turning to the Internet of Things for analytics and greater production capabilities.

The future of farming is in collecting and analyzing big data in agriculture in order to maximize efficiency. Farmers can employ IOT based farming techniques and technologies in order to improve the efficiency of their day-to-day work.

For example, sensors placed in fields allow farmers to obtain detailed maps of both the topography and resources in the area, as well as variables such as acidity and temperature of the soil, optimal times to plant, spray fertilizers, harvest or take other actions that inform crop outcomes. They can also access climate forecasts to predict weather patterns in the coming days and weeks. There are clearly many advantages a networked farm has to offer.
**Persona**

**Mark**

**Farmer**

**About**
- Age 35, married, 12 years of farming experience.
- Being into farming with limited resources, I would like to improve its productivity using cost effective and effective modern techniques.
- I am adaptable to change and curious to learn new things.
- I work with suppliers, Agro experts, farmer’s cooperatives, data scientists, warehouses etc.

**Responsibilities**
- I am responsible for agriculture farming and also livestock.
- I am responsible for daily maintenance of farm doing activities like Cultivation, spraying fertilizers, harvesting and transporting to warehouse.
- I am responsible for animals on the farm.

**Main Goals**
- Offering high precision crop control.
- Increased productivity with limited resources.
- Keep track of livestock.
- Improve farming techniques from the useful data collected.

**Needs**
- I would like to cultivate my farm with limited water supply and increase efficiency.
- I need to know the right time for weeding, spraying fertilizers and also harvesting.
- I need to keep track of my livestock and also know if any cattle is missing.
- I would like to keep track of my crop growth and inform the respective stakeholders.

**Pain Points**
- Increasing need for fresh water for cultivation.
- Climate change: Can’t predict rains hence loosing crop during heavy rains.
- Crop yield is low because of soil erosion and limited water resources.
- Fertilizers are not administered effectively.
- Cattle is missing and can’t keep track of them.
- Labour shortage because of urbanization.
- Can’t keep track on health of Crop and also livestock.
As a Farmer

I need a way to efficiently and effectively do crop and animal farming with limited resources using smart farming techniques.

So that the crop productivity is increased and I get higher ROI and also can keep track of my crop and livestock. The data collected from these techniques can help me statistically for future planning.
# UX Journey

<table>
<thead>
<tr>
<th>ACTIONS</th>
<th>Mindset</th>
<th>Feeling</th>
</tr>
</thead>
<tbody>
<tr>
<td>Know about the smart farming techniques. Meet people and gather required information.</td>
<td>Heyyyyy, I am excited as I am getting to know modern techniques which will benefit my farm.</td>
<td>🌻😊😊😊😊</td>
</tr>
<tr>
<td>Compare the existing approach with the Smart farming techniques. Make appropriate decision.</td>
<td>Will this new technology really help my farm or am I going to spend more than required output? I need to do a thorough research on this.</td>
<td>🌻😊😊😊😊</td>
</tr>
<tr>
<td>Finalize the appropriate IoT based applications and setup for the farm.</td>
<td>Hurrayyyyy, finally zeroed on the right setup. Hope it helps me in greater returns.</td>
<td>🌻😊😊😊😊</td>
</tr>
<tr>
<td>Setup of required GPS based devices, Sensors, IoT based backend and front end systems for monitoring and tracking. Coordinate with required stakeholders for sharing of this information.</td>
<td>I need to setup these devices in key areas of my farm which can get me critical data from those places for my use and also for stakeholders.</td>
<td>🌻😊😊😊😊</td>
</tr>
<tr>
<td>Take appropriate actions on crop and livestock based on useful data collected from installed devices. Run statistical predictions on crop and livestock based on collected useful data.</td>
<td>Hurray, I was able to harvest the crop before the unpredictable rains.</td>
<td>🌻😊😊😊😊</td>
</tr>
<tr>
<td>Increased productivity of crop based on smart farming techniques. Efficient maintenance of livestock with tracking of its count and health. The information tracked and collected can be passed on to data scientists for exploring other innovative techniques in farming.</td>
<td>Yes, I have made a smart decision setting up smart farming techniques.</td>
<td>🌻😊😊😊😊</td>
</tr>
<tr>
<td>TOUCH POINTS</td>
<td>Research Meetings</td>
<td>Vendors Brochures Estimates</td>
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Prototype
Prototype screens for an IoT application to solve the PoV

The prototype is developed using prototyping tool build. The prototype has 2 screens, one is Launch page which is the landing screen for the user and the second is detailed screen with all required Data.

My Smart Farming prototype can be accessed from the below URL:

https://standard.build.me/prototype-editors/api/public/v1/snapshots/53ad157da51b8bc70e203704/artifacts/latest/index.html#/launch_page

Study links for feedback:

https://standard.build.me/user-research/53ad157da51b8bc70e203704/participant/771f02347d603fd50e20a697

Launch Page: (1st Screen)
Smart Farming

LIVE TEMPERATURE
25 °C
Jul 06, 2017 00:00:00

Notifications (4)
The drip point 10 is blocked.
The moisture content in soil is normal.
Jul 06, 2017
See All

DRIP ON/OFF STATUS

AVERAGE SOIL TEMPERATURE (IN °C)

Live Stock Count

10 Days Temperature

10 days rainfall prediction