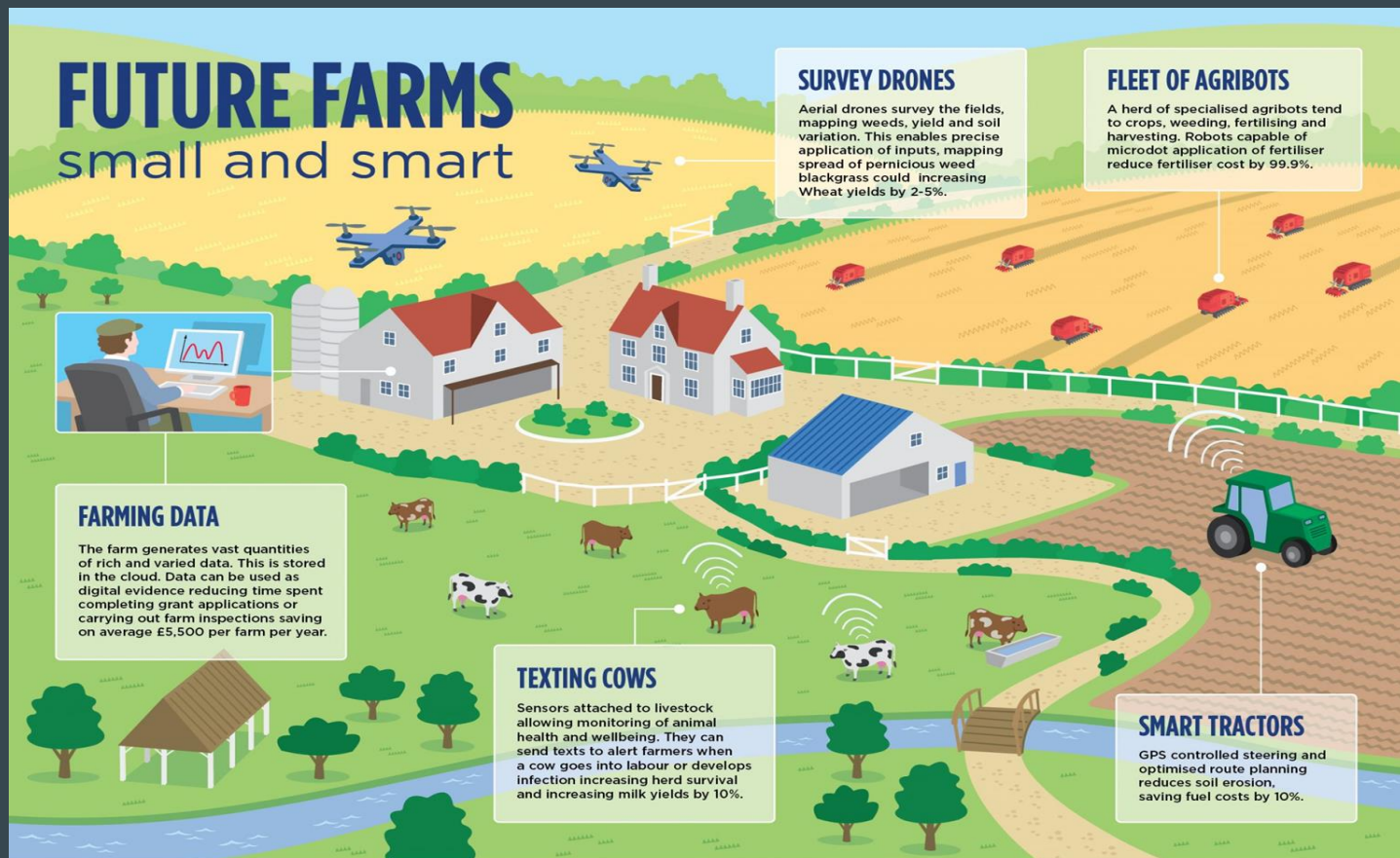# Implementing Smart Farm Prototype with Internet of Things

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Jashandeep Singh*, Jorge Hernandez Ortega*, Crystal Saini, Jesus Gonzalez

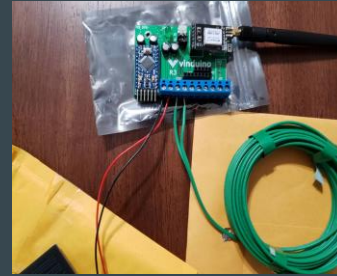Advised by Dr. Dae Hee Kim

What is a Smart Farm?

FUTURE FARMS small and smart

SURVEY DRONES
Aerial drones survey the fields, mapping weeds, yield and soil variation. This enables precise application of inputs, mapping spread of pernicious weed blackgrass could increasing Wheat yields by 2-5%.

FLEET OF AGRIBOTS
A herd of specialised agribots tend to crops, weeding, fertilising and harvesting. Robots capable of microdot application of fertiliser reduce fertiliser cost by 99.9%.

FARMING DATA
The farm generates vast quantities of rich and varied data. This is stored in the cloud. Data can be used as digital evidence reducing time spent completing grant applications or carrying out farm inspections saving on average £5,500 per farm per year.

TEXTING COWS
Sensors attached to livestock allowing monitoring of animal health and wellbeing. They can send texts to alert farmers when a cow goes into labour or develops infection increasing herd survival and increasing milk yields by 10%.

SMART TRACTORS
GPS controlled steering and optimised route planning reduces soil erosion, saving fuel costs by 10%.

Image from https://www.wespeakiot.com/robust-sensors-and-the-power-of-the-cloud-the-perfect-recipe-for-smart-farming/

Prototypes

Vinduino Components:

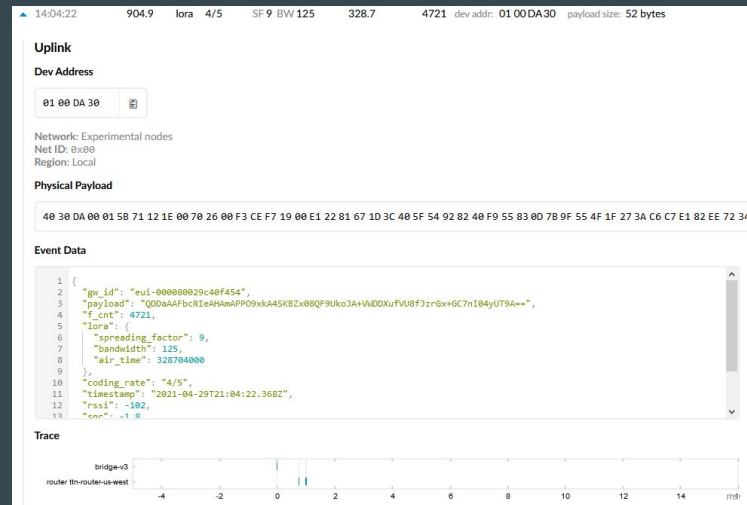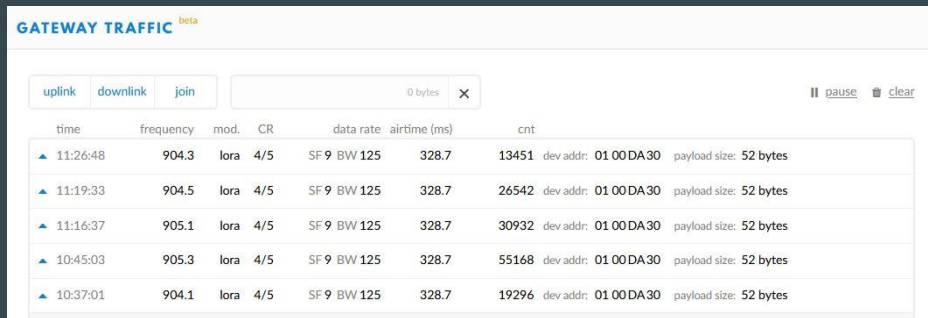- Vinduino, Soil Moisture Sensors, Solar Panel, Battery, LoRa module, LoRa Gateway

Sensoterra Components:

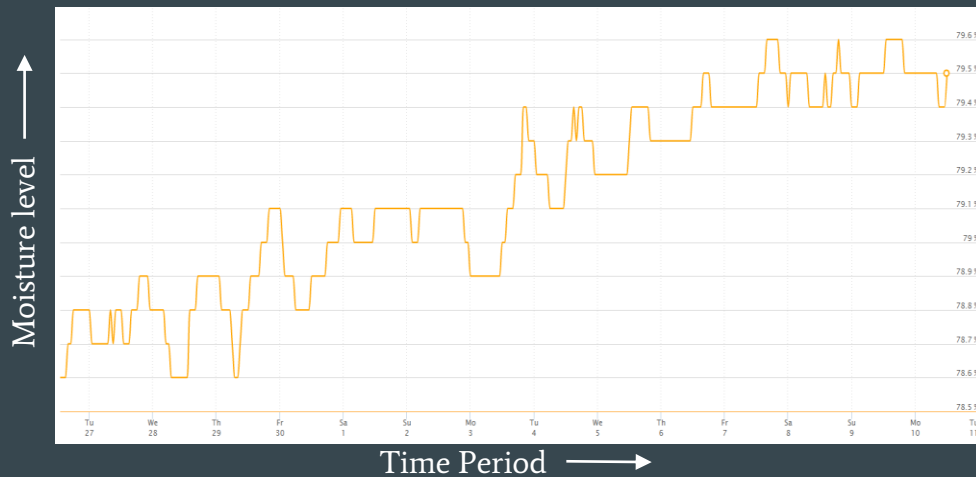- Soil Moisture Sensors, LoRaWan Gateway, Web and Mobile Application

Results

Vinduino

Sensoterra

Thank you! Questions?

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