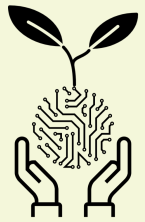# Smartfarm Kenya Agricultural Project

Powered by LC

01.OUR COMPANY

LC | LCSolutions
COMPLETE SOFTWARE SOLUTIONS

We are a tech startup that is focused on developing smart agricultural systems for sustainable agriculture informed by broad research encompassing the agricultural sector.

THE JKUAT
TECH EXPO
CHANGING LIVES THROUGH INNOVATION

The team presenting Smartfarm at JKUATTECHEXPO11

Problem
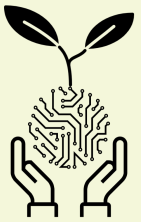
Only 7% of Kenyan agricultural land is irrigated, making the sector heavily dependent on rainfall. Increased climate volatility as an effect of climate change has thus substantially increased the risks associated with farming. Kenyan farmers are grappling with increasingly unreliable rainfall, long dry spells, frost, high temperatures, and frequent floods.This makes open-field farming,which is the most widely practiced in Kenya ,unreliable for consistent production.
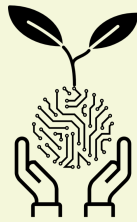
02. Solution:
Smartfarm Kenya

Project details

|	**2021**	**2022**
Project 1	Building the software architecture for the web application	Launching the web application online .
Project 2	Designing the rugged model for the sensor module.	Industrial production of the module for clients

Main goals

Goal 01

Achieving efficiency in both open and closed farming fields by developing smart systems to minimise input and maximise output.
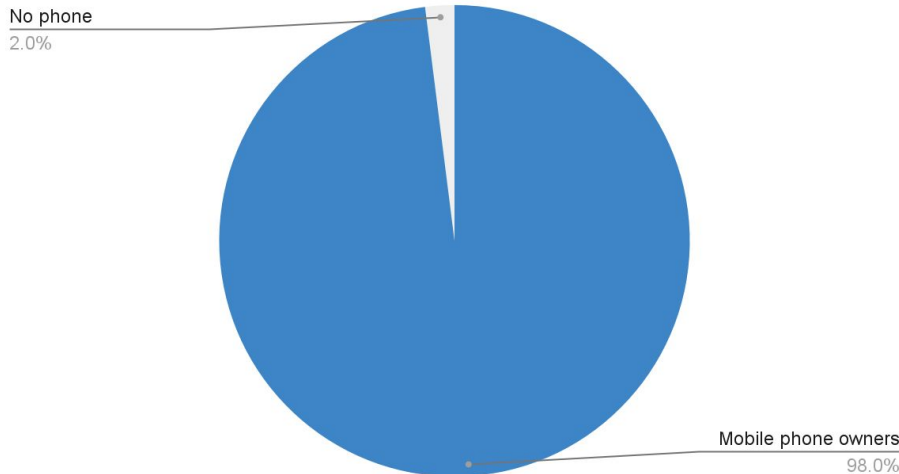
Goal 02

Using Artificial Intelligence to evaluate data gathered to obtain useful insights to the farmer in concerned areas.
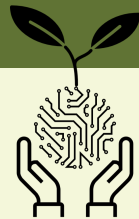
Mobile and Internet viability

Mobile phone access

No phone
2.0%

Mobile phone owners
98.0%

About 25% of all Kenyans access the Internet, and another approximately 25% use wireless connectivity. An estimated 98% of Kenyans own some type of mobile phone and over 80% have mobile subscriptions. From 2013 through the end of 2018, Internet/data subscriptions in Kenya increased by 268%, and now stand at more than 45 million. Over the same time period, mobile subscriptions increased by 63% to 49.5 million.
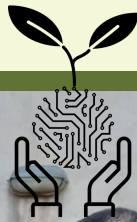-Digital Agriculture Profile Kenya

"

Unless Africa uses modern technologies ,our farmers' output will remain low and we will remain dependent on others to feed us."

—Akinwumi Adesina
2017 World Food Prize winner

Demonstrating to a client how to access the dashboard from her phone

Sneak peek

The Project

- It mainly has 2 parts:Hardware and software.Hardware contains the ragged sensor module connected to various sensors, solenoid valve or pump and solar panels that power the project.
- The software part contains the web application which has the sensor dashboard alongside pages containing automation controls ,crop profiles and more.
- Remote farming capabilities via SMS, USSD ,mobile App and Online dashboard via the smartfarm portal.

Now

We have accomplished building both the software and hardware of the project, with useful input from stakeholders in the sector such as agronomists, farmers and agritech enthusiasts to ensure the system is user-friendly and tailored to fit its purpose in agriculture.We are currently working on Machine Learning models and a data platform for the data that our modules will be collecting while deployed such as air temperature,humidity ,soil moisture and nutrient content.
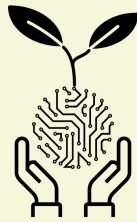

The first prototype that was done under low budget.
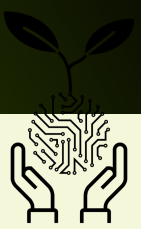
Future

We are aiming at building an ecosystem of Smartfarm technologies that will be employed all across the spectrum of the agricultural sector that is data-driven and will utilise technologies such as blockchain .

Installing a solar panel that will power the project on-site in Rongai.

What we are working on

Web application

This is the dashboard and other pages that make up the SK portal.

It will contain Remote farming capabilities and will contain farm analysis and reports.

Rugged sensor module

Will contain an array of sensors depending on the tier the farmer has chosen ,that gather data and relays to the SK portal.

AI
For data analysis

Various machine learning models will be employed to analyse the data received from the farms and extract useful predictive models and insights that a farmer would otherwise not have access to.

Pricing model

	Tier 1 (Basic)	Tier 2	Tier 3 (Premium)
SK module	✔	✔	✔
Automation of irrigation	✔	✔	✔
Solar panel	✔	✔	✔
SMS controls and alerts	✔	✔	✔
SK portal access	✘	✔	✔
Remote farming	✘	✘	✔
	Ksh.35,000 +500 monthly (VAT incl.)	**Ksh.50,000 +750 monthly (VAT incl.)**	**Ksh.90,000 +900 monthly (VAT incl.)**

TIER 1
Automation of Irrigation
Temperature and Humidity sensor
Gate valve
SMS controls
Solar panel

TIER 2
Automation of Irrigation
Temperature and Humidity sensor
Moisture sensor
Light sensor
SK portal access
Gate valve
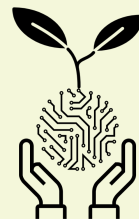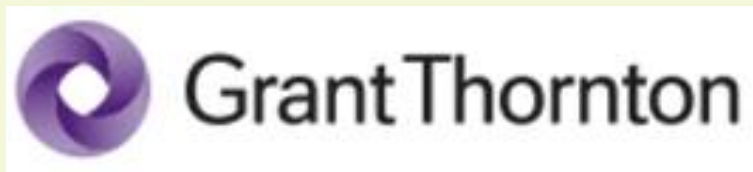SMS controls and alerts
Solar Panel

TIER 3
Automation of Irrigation
Temperature and Humidity sensor
Moisture sensor
Light sensor
PH sensor
NPK sensor
SK portal access
Gate valve
SMS controls,Email alerts
Solar Panel
Remote farming controls
Data Insights from AI models

"An idea is only as good as its implementation"

Our partners

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Thanks!

Do you have any questions?
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