Cisco develops, manufactures and sells networking hardware, software, telecommunications equipment and other high-technology services and products.

- More than 71500 Employees
- 165 Countries with 380 global sites
- More than 19000 patents
- 25000 Engineers
- #1 or #2 in most of the market segment
- Broad portfolio of integrated products and solutions
Agenda

1. Approach
2. Building Blocks
3. Use Cases
Objectives

- Address few challenges of the Agricultural / Fisheries sector
- Sensing parameters that affect agriculture/fisheries in near real-time & help experts to develop recommendations and prediction with cross co-relation of different parameters
- Provide easy actionable visualizations to experts at farm and panchayath level.
- Observations and analysis with the help of AI working on top of Bigdata to make it future ready.
- Provide an Agri-Digital Infrastructure (ADI) & platform to set up village knowledge centres (VKCs) for seamless collaboration between farmers and experts
Approach

• Two constituencies (Dharmadam & Taliparamba) 15 Panchayaths
• Selected Shrimp culture (Vanami) & Paddy for pilot Scope
• Selected 4 Ponds and 4 Farms for implementation with sensors.
• Satellite monitoring 15 panchayaths along with 4 paddy farms.
• Government engineering college Kannur as Data Center & Control Center
• KVK Kannur as Primary monitoring center
Search for Real Challenges

• 41+ Meetings and Site visits in 5 Months
• Paddy : PH, Pest , Diseases, Weather, Water
• Shrimp : Dissolved oxygen, PH & Temperature
• Challenges around seamless collaboration between the farmers and the experts.
• Challenges around data acquisition and holistic analysis.
Sensors?
Aqua installation (Shrimps - Vanami)

Dissolved Oxygen, Temperature, pH
Agri installation (Paddy)

Manthavayal
Perivangoor
Keezhalam
Kandaki

Soil Temperature
Soil Moisture
Soil pH
Standing Water level
Data Center – (Kannur Government Engineering College)

Server, Big Data technology AI Data Store

Control Center
Primary Monitoring Center (KVK Kannur)

55” touch Video collaboration board, Touch workstations & Dashboard
Village Knowledge Center

Agri Dashboard Operator to inspect Agri dashboard. Send necessary information to Farmers & Experts

15 Locations
Satellite Monitoring

Acreage of paddy
Crop performance
Harvest Readiness
Harvest Progression
Mobile application

Receive alerts, announcements and recommendations

Log Incidents and track them

Other General Agriculture and aqua culture related information

graphs of each available parameter

Weather information
Web portal

Quick access to VKC

Online presence.

Quick access of other general information about Kannur.

Access/Navigations to mobile application.
GCEK (Server + Control Center) Agri-Digital Platform + BigData

KVK (Monitoring Center) - 15 VKCs

Mobile app & Web portal

Govt Databases + Farmer profile data

4 Agri sensors

4 Aqua sensors

Webex Teams
Agri Sensor (Soil pH, Soil Moisture, Standing water level, Soil Temperature)
Agri Sensor (Soil pH, Soil Moisture, Standing water level, Soil Temperature)
Agri Sensor (Soil pH, Soil Moisture, Standing water level, Soil Temperature)
Aqua Sensor (Dissolved oxygen, Water pH, Water Temperature)
Aqua Sensor (Dissolved oxygen, Water pH, Water Temperature)
Satellite Monitoring – Acreage of paddy

Panchayat Info:
- Panchayat: Kurumathur
- Crop Area (Ha): 42.11

Kuttilatoor

Acreage of Paddy (Ha)

Date of Acreage Assessment:
- Aug 01: 101.35
- Oct 10: 14.08

Cumulative Acreage of Paddy

Panchayat Acreage of Paddy Comparison

Crop Area (Ha)

Mayil
Partyaram
Kuttilatoor
Kollachery
Kurumathur
Malappattam
Anjappamundy
Muzhappilangad
Pinarayil
Vengad
Dharmadam
Chembolle
Kadambur
Paraulassery
Chapparapadave

Panchayat
Satellite Monitoring – Crop health moisture
Satellite Monitoring – Other parameters
Executive dashboards – Department
Executive dashboards – Farm level
Executive dashboards – Incident
Mobile application features – General public

- OTP based login
- Weather data.
- Subscribe to Announcements
- Know general details about agriculture / aquaculture
- Reach out to VKC call center.
- Use incidents
Mobile application features – My Farm / My Ponds

- Weather data.
- Subscribe to Announcements and alerts
- Know values from the sensors
- Know a history information of sensor values in the form of graphs
- Reach out to VKC call center.
- Use incidents
Mobile application features – Incidents

- Report with Multiple images.
- Reports with date
- Reports with location information
- Reports with profile of the farmer
- Reports with profile of farm.
- Google voice to text support
- Trackable recommendation history, status
WebEx for collaboration in Agriculture

• World leading Conference solution
• VKC/Monitoring Centers can join Meetings
• Easy to conduct video trainings, record and share
• Mobile application for collaboration.
• Room 55 with camera and touch video collaboration.
Transforming solutions for Kerala

• Clouds hindrance for Satellite monitoring
• Insects covering the sensors in Aqua
• Soil pH required at different depth
• Separate sensors for Moisture and Water level.
• Malayalam support for Mobile application.
• Malayalam support for Dashboard.
my Kannur

Kandakai
35.0325 Acre
Bad

Keezhalam
114.7256 Acre
Good

Manthavayal
Farmer reports Incident from mobile application
Farmer at VKC
Collaboration from Experts to Farmers
VKC finds Incident and proactively notifying farmers
Future Ready?

• Thousands of Farms, Panchayaths, Farmer profile, Large area satellite data processing.

• Seamless handling possible with CISCO BigData Platform.
Big Thanks to

• The Vision of Honorable CM Sri Pinarai Vijan & Sri Jaims Mathew MLA
• The Initiative from Kerala IT Secretary & IT Mission Kerala
• District Collectorate Kannur
• Agriculture department, Agricultural university & Department of Technical Education.
• Government College of engineering Kannur (Prof Dr. Sooraj Head of mechanical Engg Department)
• Krishi Vigyan Kendra Kannur (Dr. Jayaraj Head of KVK Taliparamba)
• Mayyil & Dharmadam panchayath.