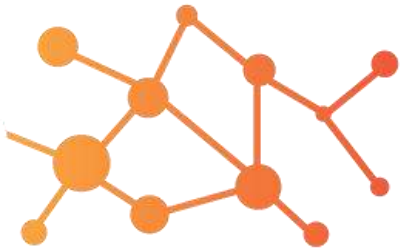

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Building of Smart Devices using MQTT Protocol

Madhu Parvathaneni
Director & Certified IoT Expert
Madblocks Technologies Pvt Ltd
, LinkedIn: madhupiot

For questions, write us on iot@madblocks.tech

Agenda

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Topic – 1:

IoT Outline

Topic – 2:

MQTT Protocol

Topic – 3:

Live Implementation

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Topic – 1: IoT Outline

IoT – 4D Technology

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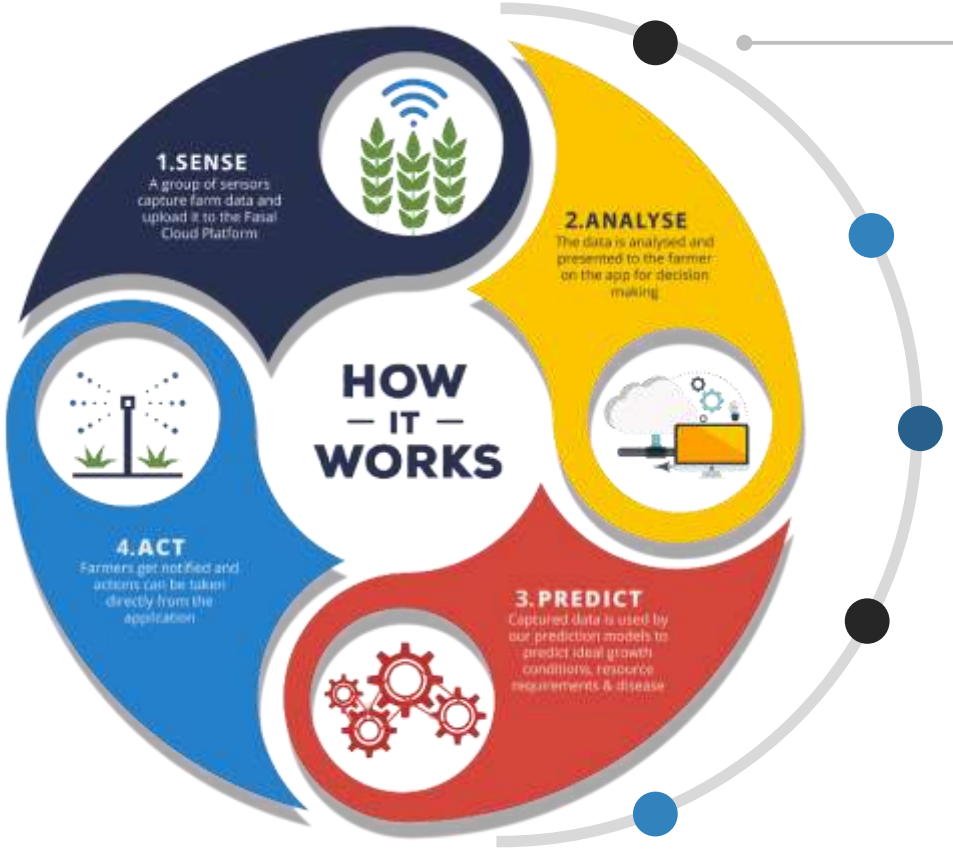

1

Sensors – Data Collection

A group of sensors capture the data from the farm – 1st D

IoT – 4D Technology

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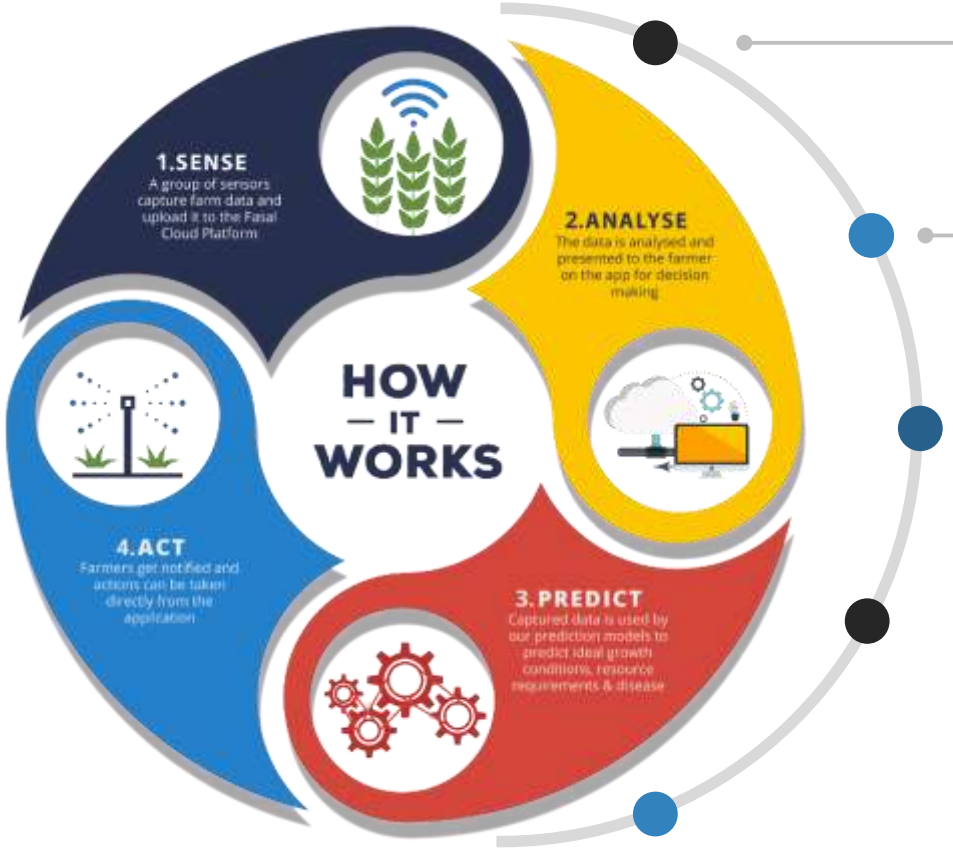

1

Sensors – Data Collection
A group of sensors capture the data from the farm – 1st D

2

Wireless Sensor Network – Intermediate Stage
A network of computers placed across the farm for processing

IoT – 4D Technology

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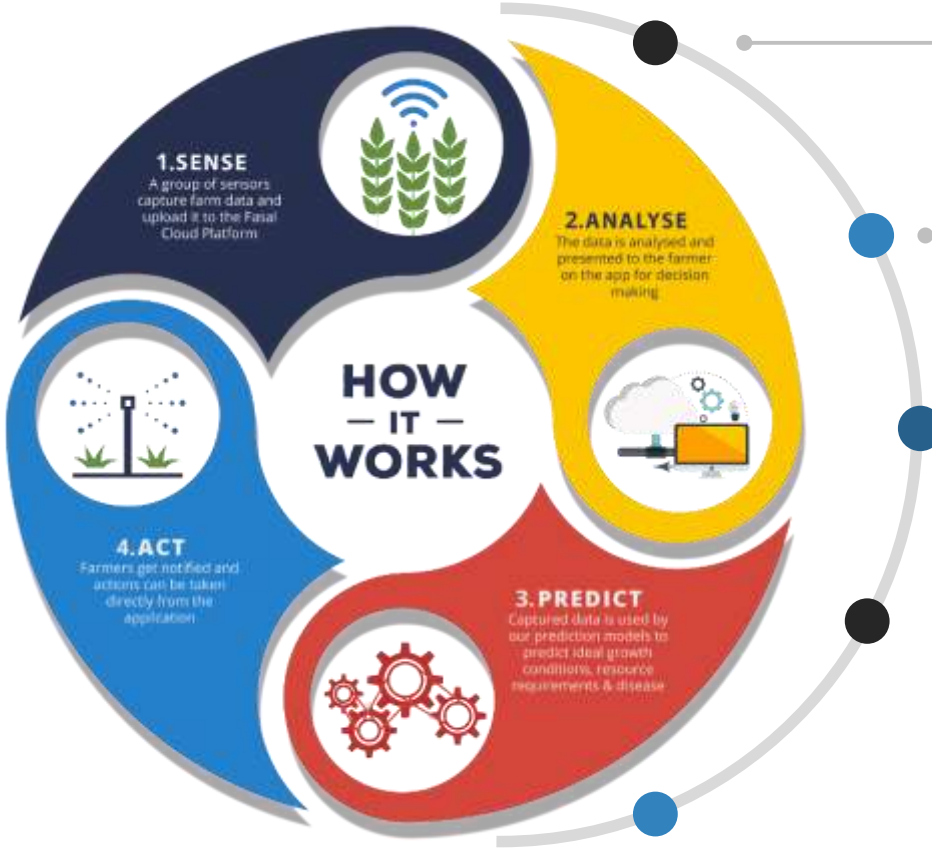

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IoT Gateway
A gateway which is a member of WSN and which has internet

IoT – 4D Technology

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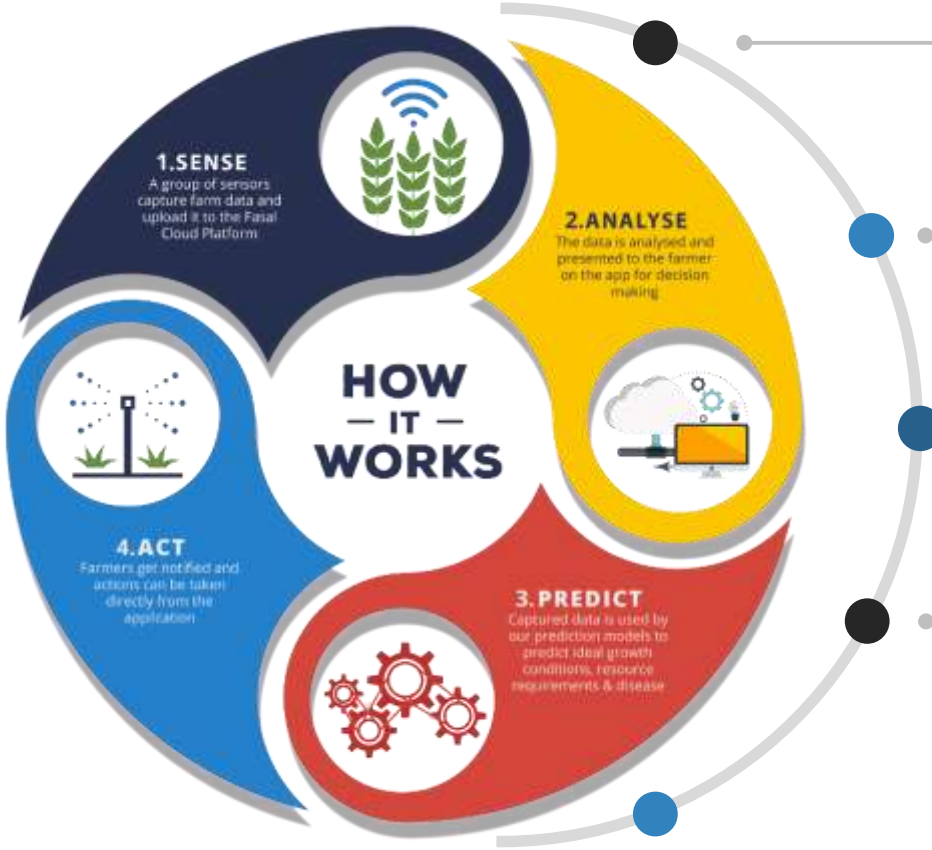

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The farm data sent from the IoT gateway will be stored

IoT – 4D Technology

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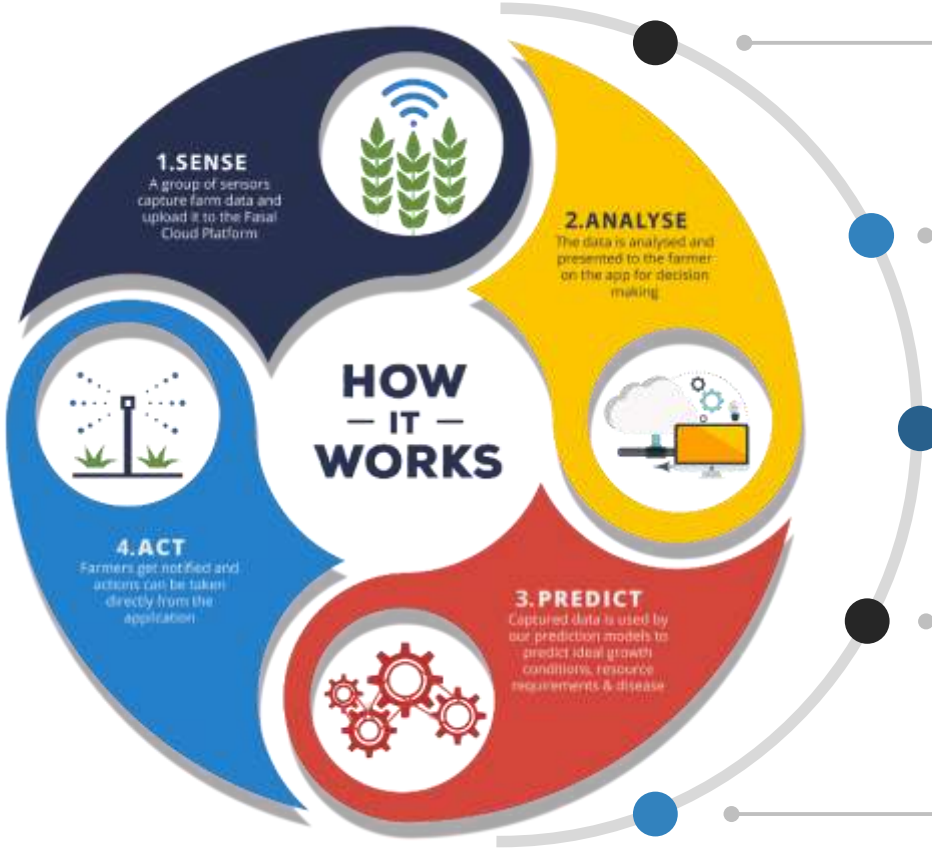

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Predict & Act – Intelligence – Data Analysis
Collected data is sent to prediction models for growth analysis and notified the farmers or IoT gateway through the apps

IoT – 4D Technology

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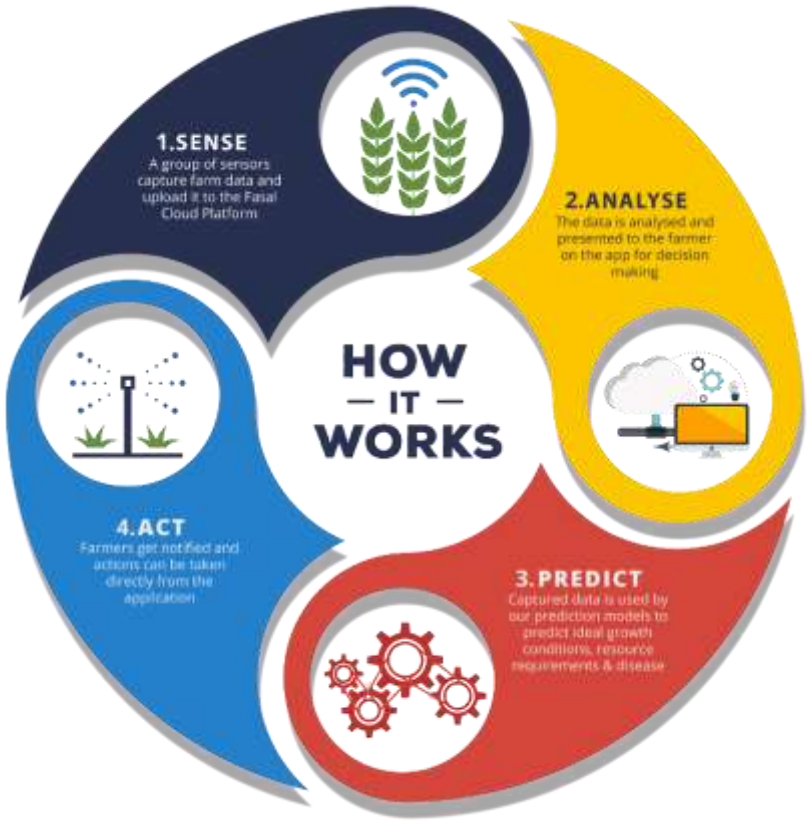

4 D(ata)

1. Data Collection
2. Data Storage
3. Data Visualisation
4. Data Analysis

IoT – 4D Technology

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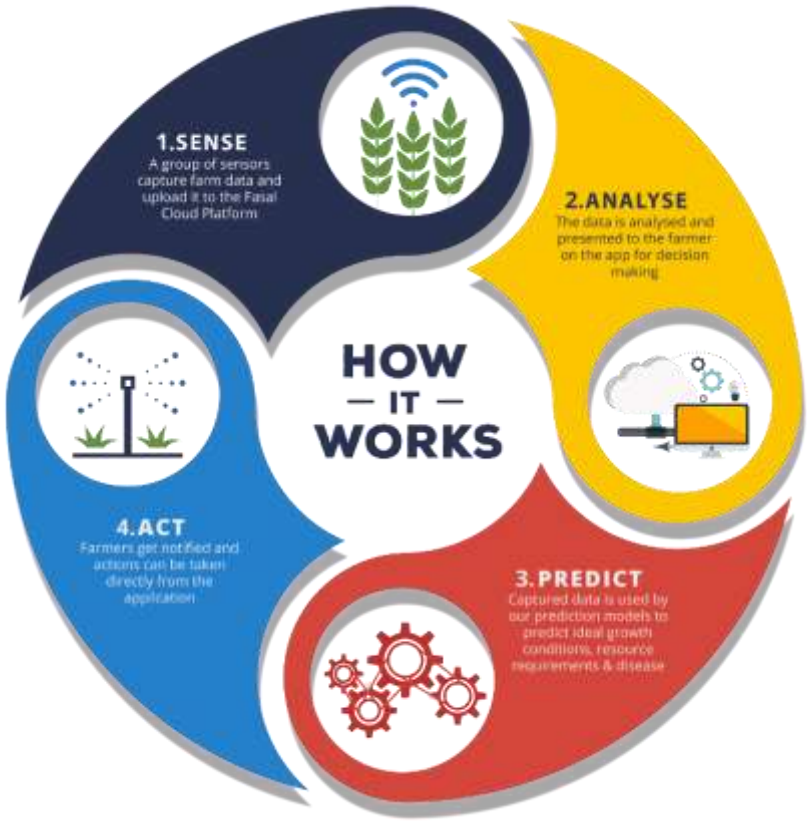

4 D(ata)

1. Data Collection
2. Data Storage
3. Data Visualisation
4. Data Analysis

5 L(ayers)

Layer – 1: Sensory Layer
Layer – 2: Network Layer
Layer – 3: IoT Gateway
Layer – 4: Cloud
Layer – 5: Mobile and Web Apps

Summary

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Pack-Up!

– IoT is a 4-D technology for simple to understand and it is a networking of devices communicate with each other for doing the self-tasks needed for the user.

– IoT Gateway is an alternate for Wi-Fi Router in the present generation of networking.

– If you want to build a stand-alone IoT device, then you can remove Layer – 2, and Layer – 3 in the IoT architecture.

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Topic – 2: MQTT Protocol

Message Queueing Telemetry Transport

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MQTT Protocol

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Features

Small code footprint,
Ideal if processor or memory resources are limited,
Ideal if bandwidth is low or network is unreliable,
Works on top of TCP/IP

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Pub-Sub Model

Publisher – Sender,
Subscriber - Receiver

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Publisher – Sender,
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Broker and Topic

Broker – Server connecting Pub and Sub
Topic – On which topic the messages are shared
Port – 1883 (Default Broker)
Broker – broker.hivemq.com

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Applications

Smart Home
Smart City
Smart Healthcare
Smart Agriculture
Smart Industries etc….

MQTT Flow

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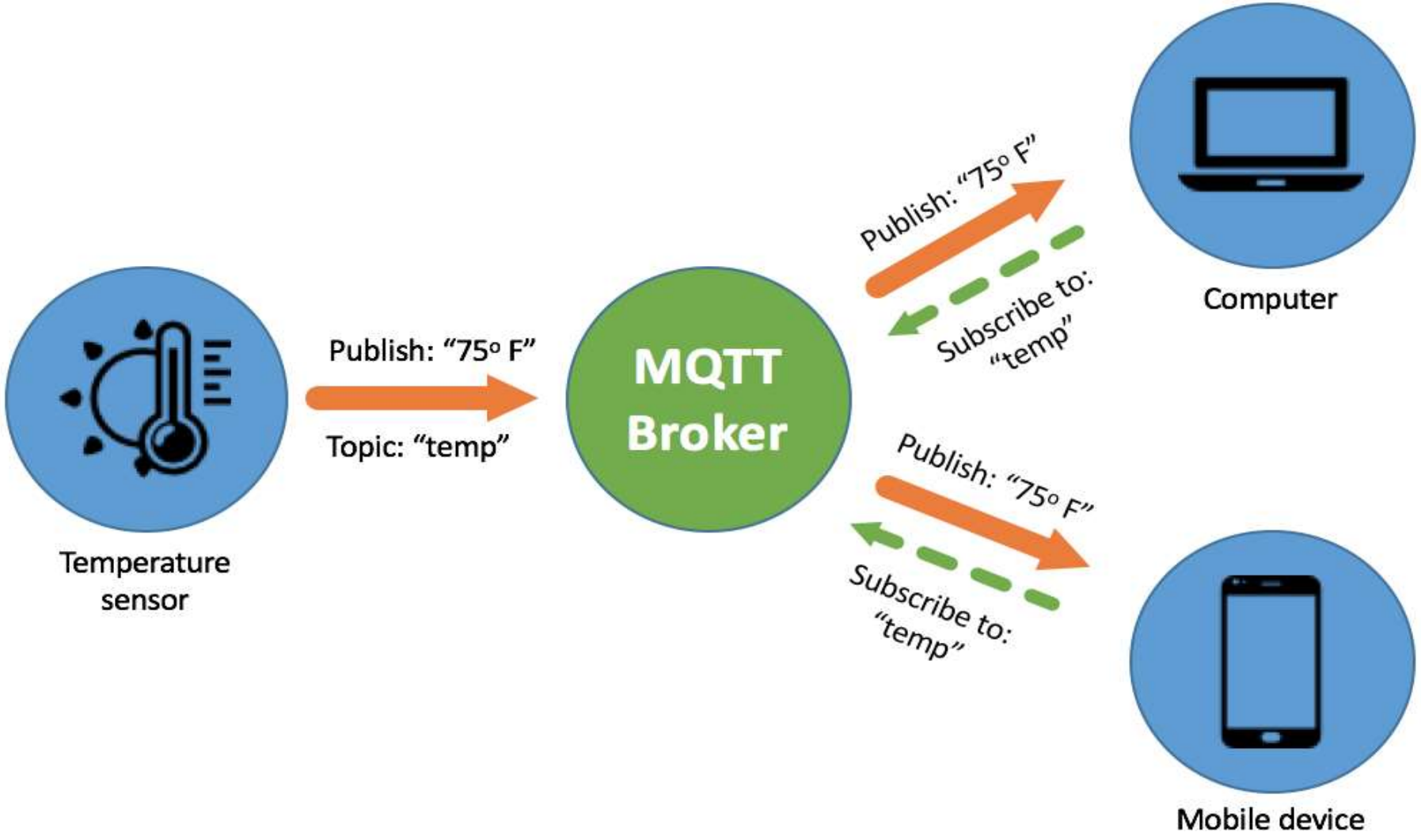

Summary

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Pack-Up!

– We have read the data from Arduino Uno through Raspberry Pi

– We have implemented MQTT Protocol in between the Raspberry Pi and Google Colab

– We are storing the data in the file

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