

 3YP Project - CO3060

skyT

Project Proposal

Cultivating Insights for
Agricultural Advancement.

...

Presented by **Group 11**





Introduction

Background

- Tea is a key contributor for Sri Lanka's GDP Revenue.
- Traditional management faces issues
 - Inefficient resource allocation
 - Inefficient quality assessment
 - Managing Larger area within a day

20% ↓

Export Value

Due to inefficient
resource quality
checks



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**Resource
Allocation**

**Manual
Inspection**

**Pests and
diseases**

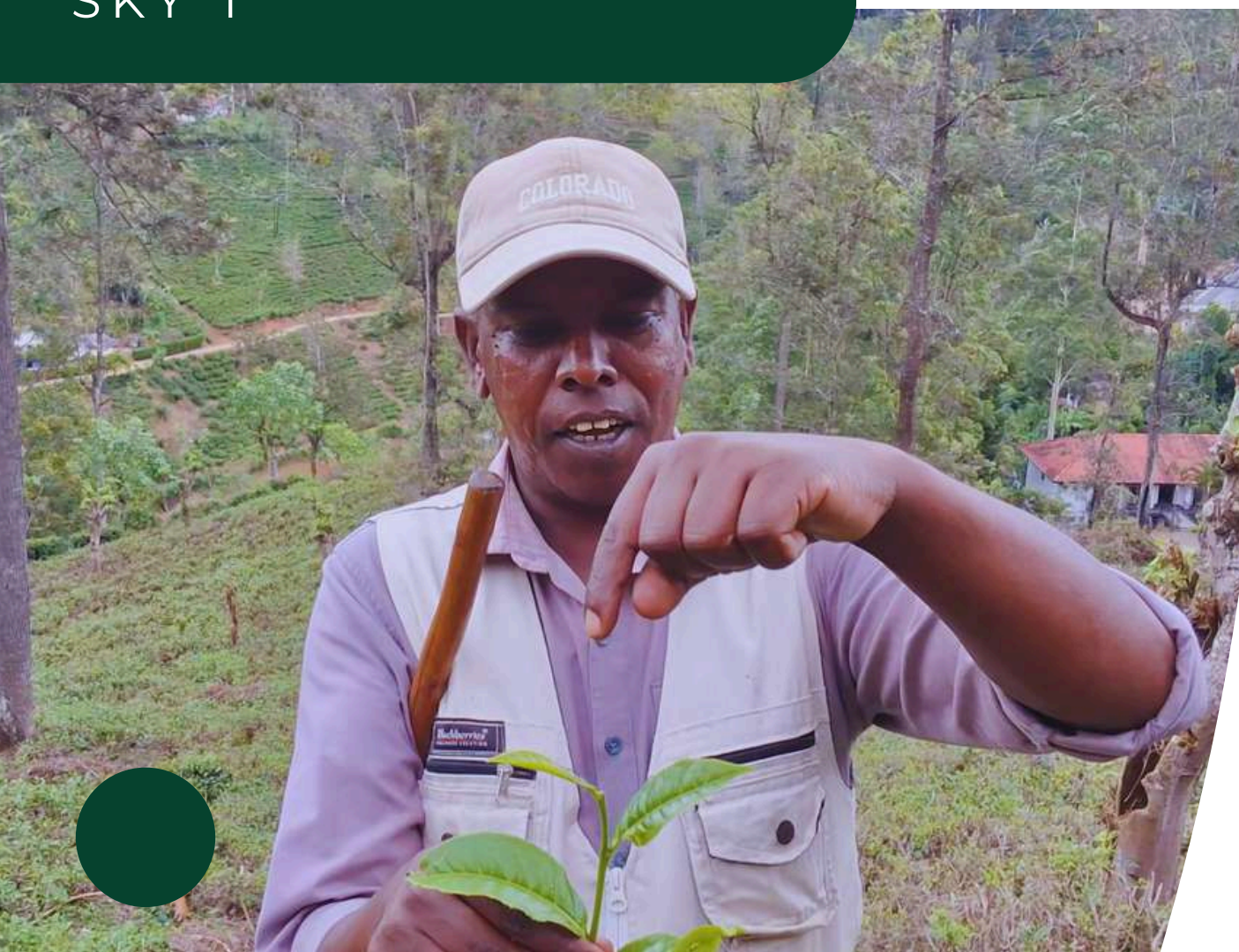
**Environmental
Pressure**

Problem Statement

- Manual Inspection
 - Time Consuming
 - Reduced export value
- Resource Allocation
 - Lack of precision in monitoring and distribution of resources
- Pests and Diseases
 - Absence of early detection systems
 - Up to 20% annual yield affected by pest
- Environmental Pressure
 - Variability in weather conditions affects soil health and crop yields



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Requirement **Analysis**

- Stakeholder : The Manager
Logie Estate
Thalawakelle Tea Plantations
- Meeting : 21st December 2024

Key Requirements

- Harvest Readiness:
 - Evaluate crop maturity for optimal harvesting.
- Environmental Monitoring:
 - Soil acidity, air humidity, and temperature.
- Soil Quality:
 - Test soil for nutrients, texture, and fertility.
- Automated Drones:
 - Deploy height-adjustable drones for real-time lot monitoring.

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Our Solution

Scope

A drone-based automated crop management system integrating sensor networks and data analytics.



High-Precision Estate Mapping

Automated drone navigation by mapping the tea estate and establishing strategically placed waypoints equipped with parameter-collecting sensors



Automated Tea Lot Qualification

Utilize drone imagery analysis to assess and determine the pluck readiness of tea lots based on predefined criteria.



Real-time data visualization

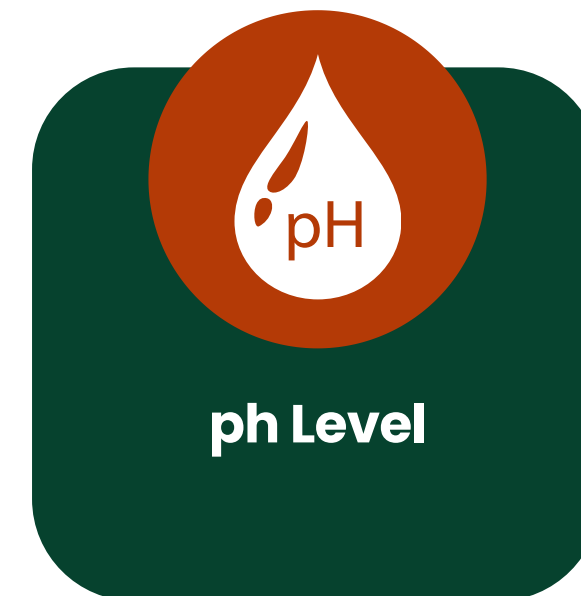
Leverage IoT-collected data from strategically placed waypoints to visualize estate conditions and present through a centralized dashboard for informed decision-making.



Our Solution Contd..

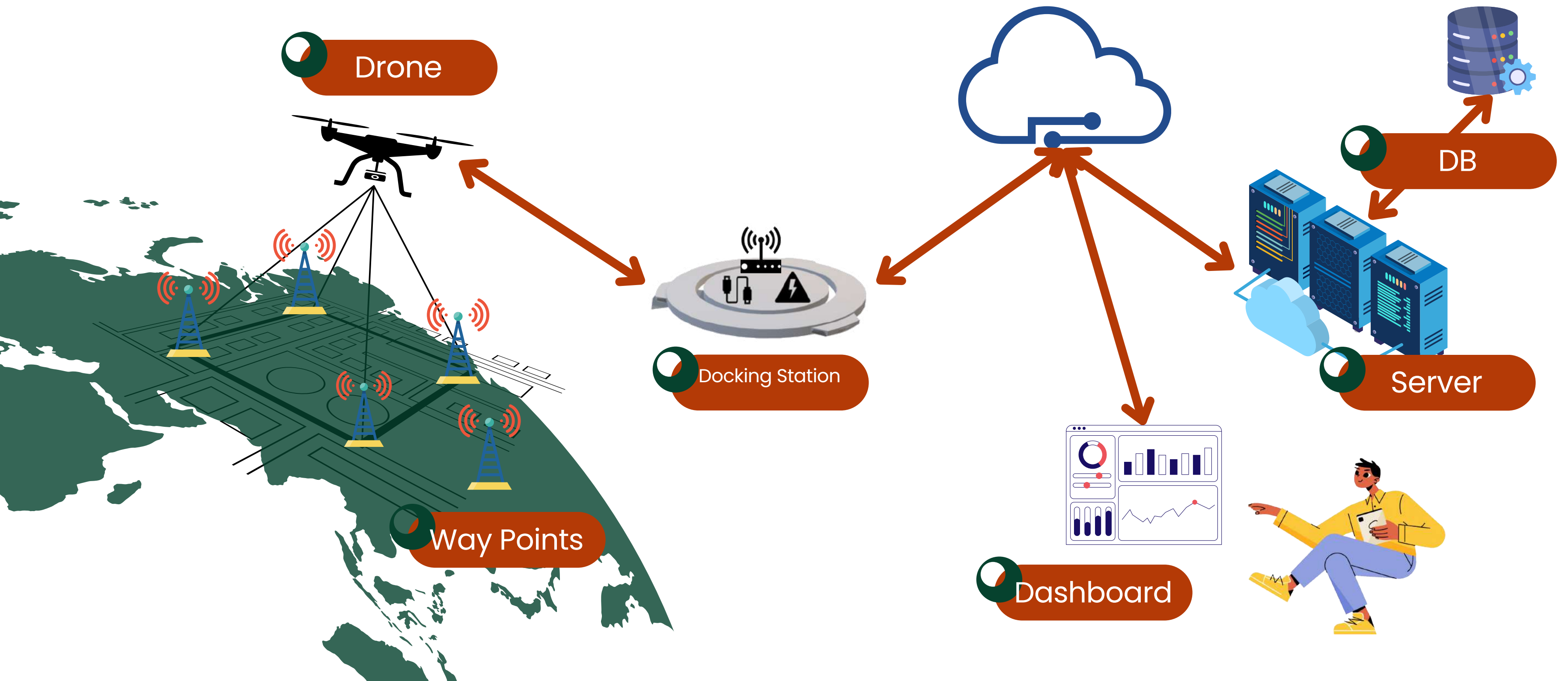
Metrics

Deploy multiple sensors at each waypoint to collect critical data, including pH, temperature, humidity, and nitrogen (N_2) levels, ensuring comprehensive monitoring of estate conditions.



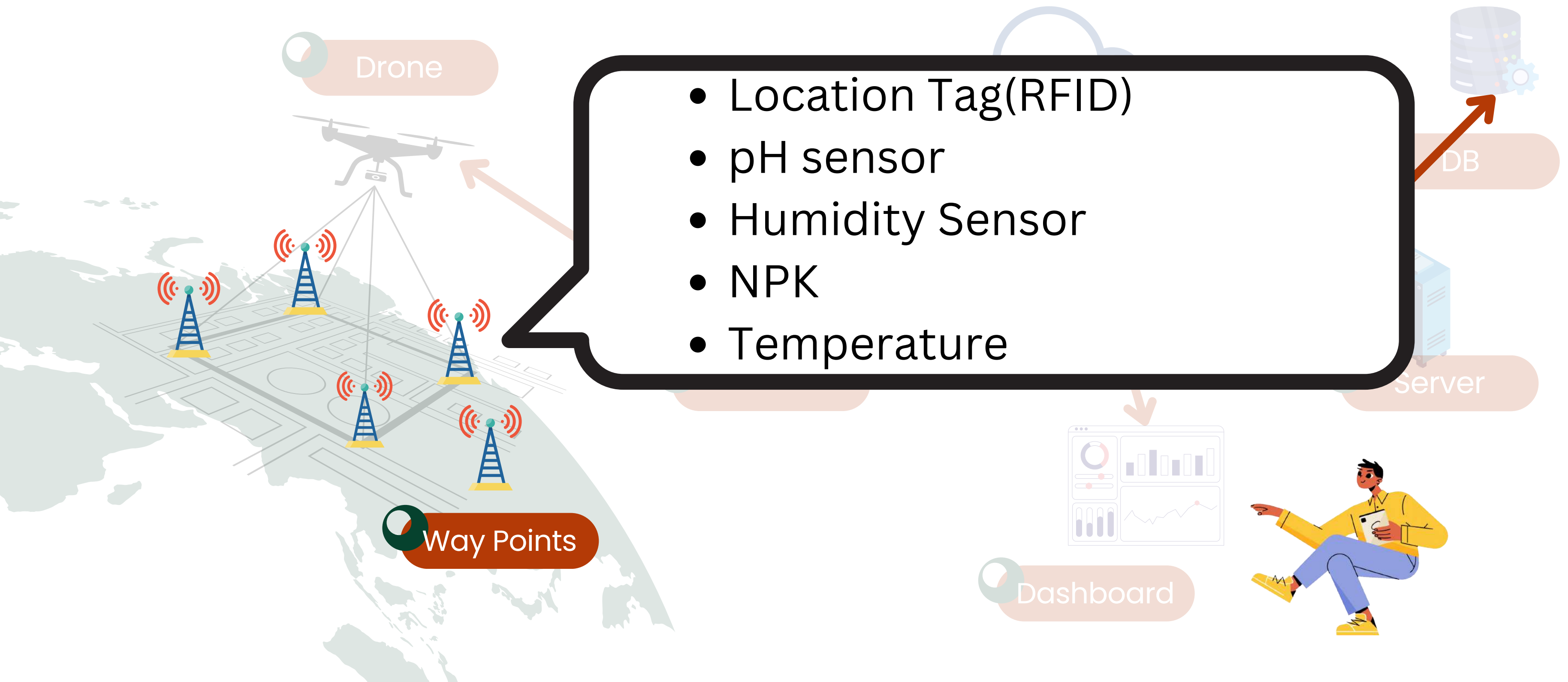
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Proposed Solution System Architecture



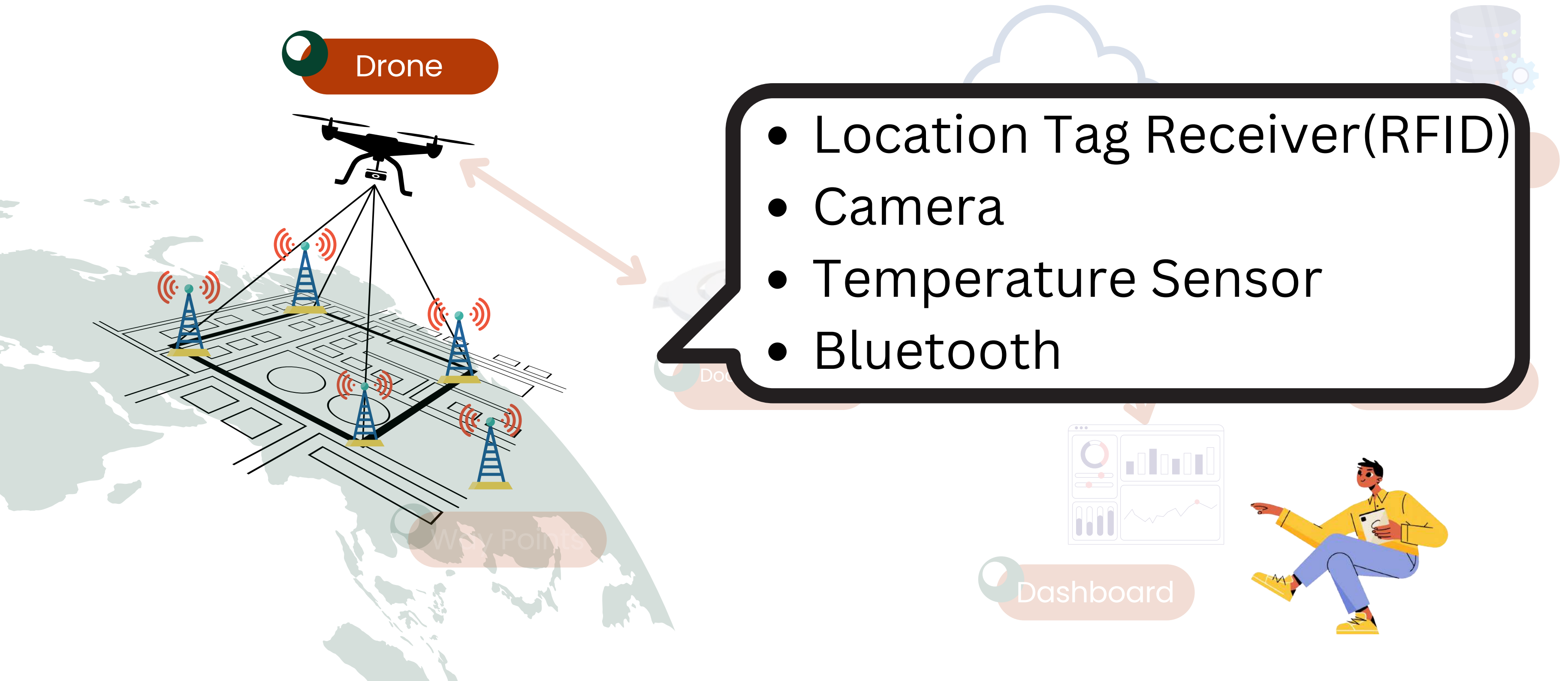
Proposed Solution

System Architecture



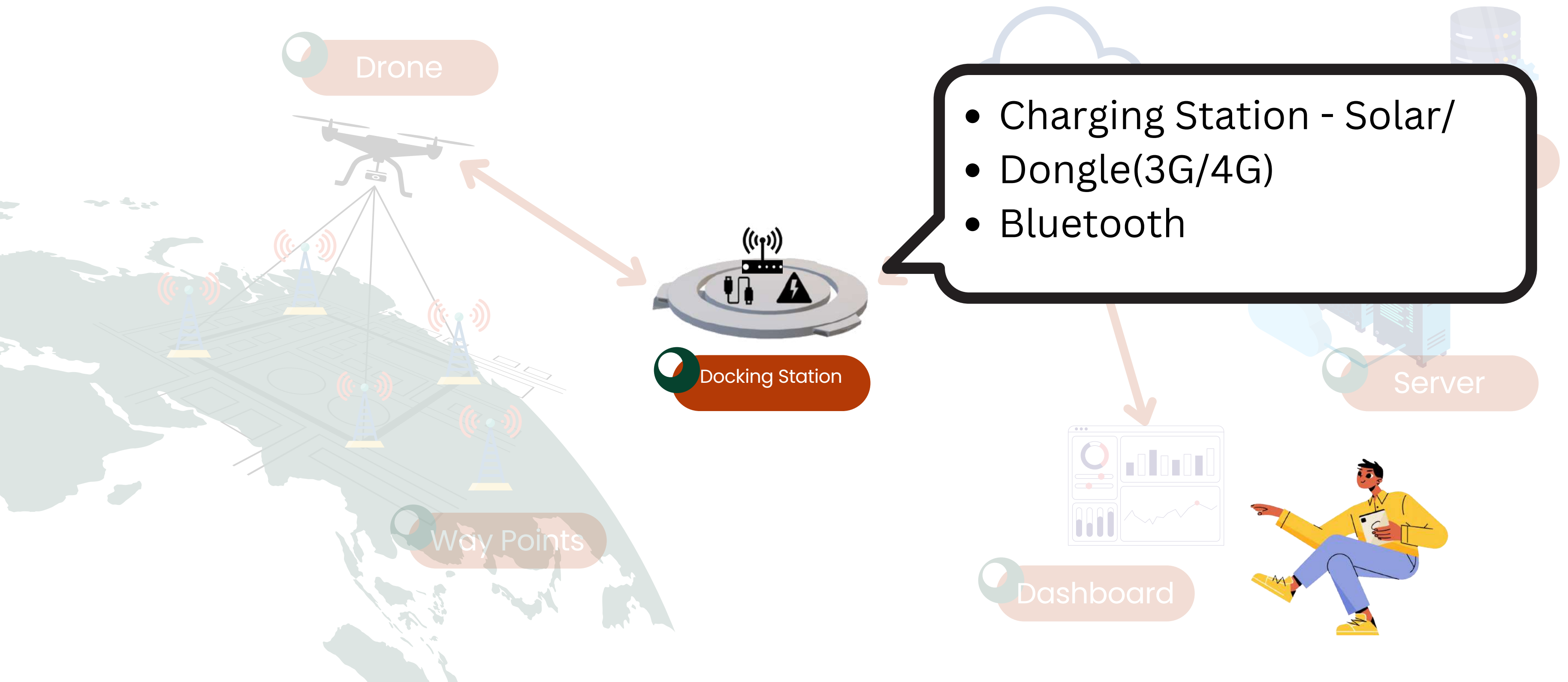
Proposed Solution

System Architecture



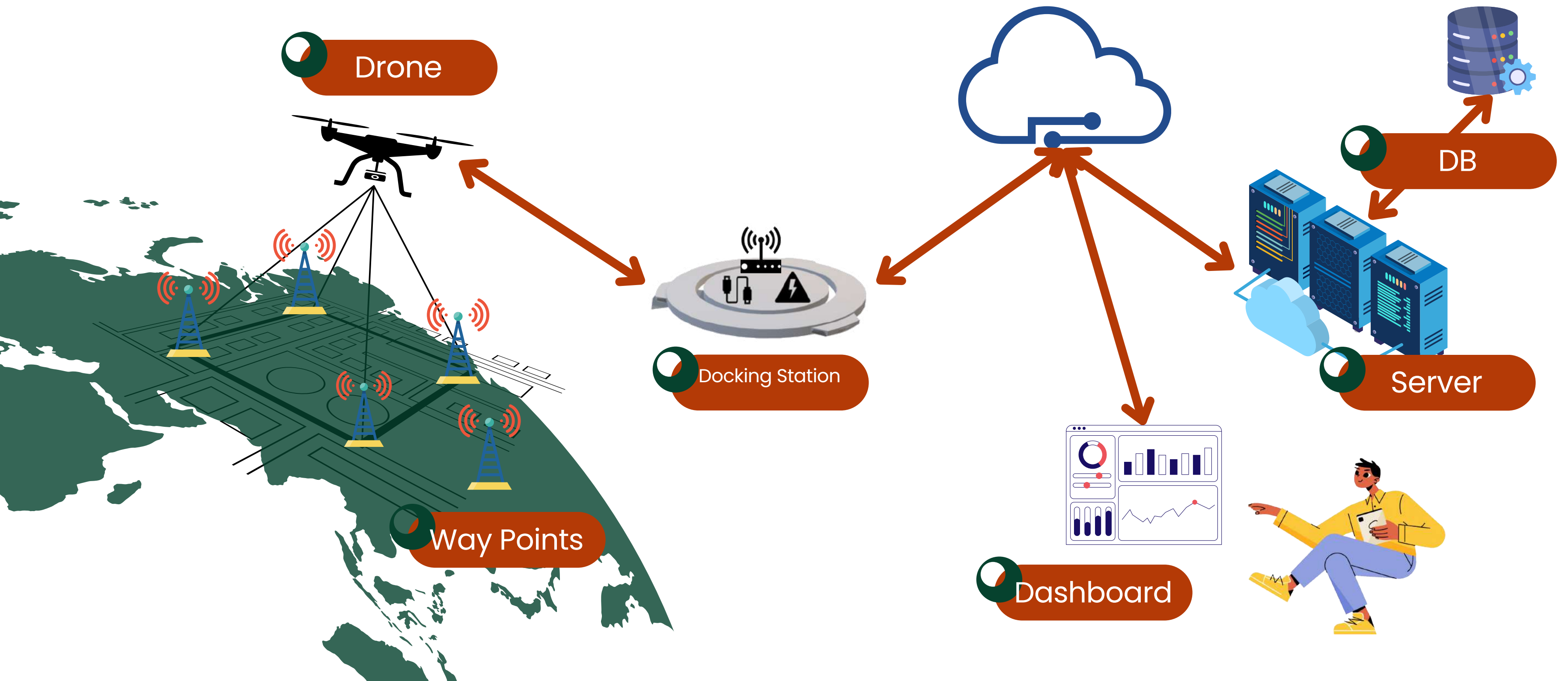
Proposed Solution

System Architecture



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Proposed Solution System Architecture

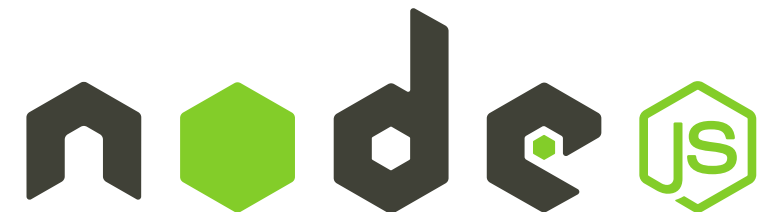


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Proposed Solution

Tech Stack



Cloud Platform

Azure

BackEnd

node js

FrontEnd

React + Vite

Database

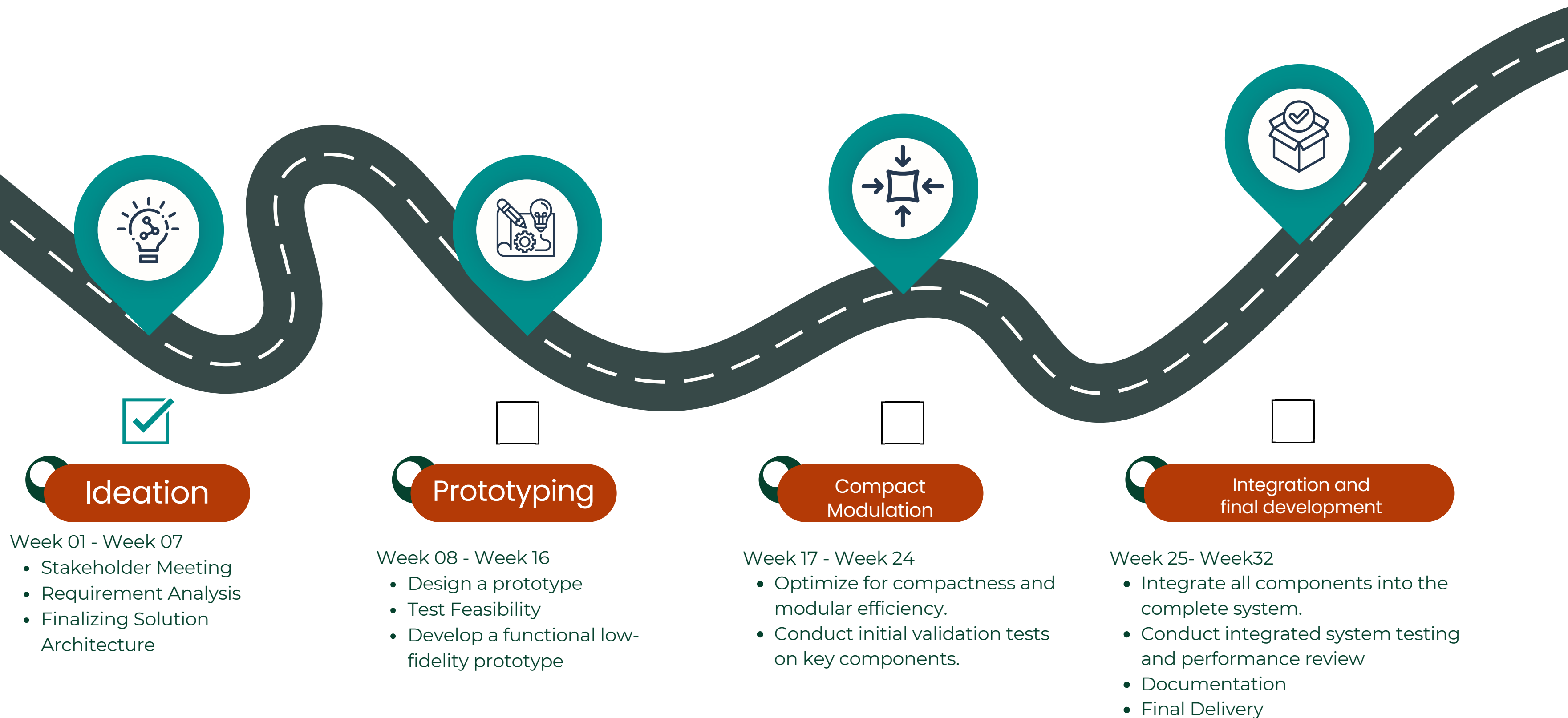
MySQL
mongoDB

API

Google Maps



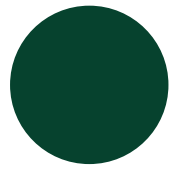
Project Timeline



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Meet Our **Team**



Chethiya

E/20/032



Mathisha

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Bimsara

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Thank You

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Let's sow the seeds of change together

