

**Are you...**

Worried about efficient ways to fertilizing & pest protect your plants??



Concerned about  
optimizing crop  
yield??

Troubled about  
inefficient Water  
usage??

Want to take charge and minimize soil degradation??

**Introducing the most viable agricultural solution**

# InfiSense

A Practical Approach to IoT

InfiSense is a one stop solution in agricultural industry solving most of farmer's concerns in sophisticated and practical ways. InfiSense uses a fleet of in-house developed precision sensors and InfiloT Platform solutions to achieve maximize yeilds, ensure safety & save dollars.

The purpose of the InfiSense Agriculture Kit is to enable you to build your complete IoT solution from sensors and actuators, through a gateway up to cloud and mobile apps just in a matter of a couple of hours and use your solutions for proof-of-concept for your projects.



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## Features:

- ✓ Quick and Easy Installation and Setup
- ✓ Configure and control via built-in API's
- ✓ Easy Plug-and-Play Phoenix connection for sensors and actuators
- ✓ Comprehensive working and principle of all sensors
- ✓ Easy to use API's with elaborate example codes
- ✓ On-the-fly Infilot Cloud Platform Integration
- ✓ Interfacing of many important sensors and actuators for agricultural IOT
- ✓ Portable Kit- test real field parameters
- ✓ Easy programmable/replaceable microcontroller
- ✓ Interface, indication and controls using Indication Led, button and lcd
- ✓ On-board I2C based LCD module for real-time display of important Data
- ✓ Provision for Deep Sleep modes for real on-field testing of your project.
- ✓ On-board 16-bit Analog-to-Digital Converter for precise measurements.

## Sensors & Modules:

### ✓ InfiSense:

- Microcontroller: Tensilica 32-bit RISC CPU Xtensa LX106
- On-board 16-bit precision Analog to Digital Converter module (ADS1115)
- Motherboard with in-built display, controls and sensor connectors.

### ✓ Capacitive Soil Moisture Sensor:

- Output Voltage 0-3 Vdc corresponds to 100% to 0% water content in soil
- Corrosion resistant material gives exact soil water amount for longer life

### ✓ UV Sensor:

- Output Voltage 1-3 Vdc corresponds to 0-15 mW/cm<sup>2</sup> @365nm wavelength
- Photodiode Sensitive to UV-A and UV-B useful for keeping out pests

### ✓ Leaf Sensor (InfiLeaf):

- Output Voltage 0-3 Vdc corresponds to 100% to 0% water content in soil
- Mimics an actual Leaf, along with its heat exchange properties
- Can sense milligram levels of water condensing on leaf surface to save plant from guttation diseases

### ✓ Temperature Probe(DS18B20):

- Measures -55°C to +125°C with ±0.5°C Accuracy on one-wire interface.
- Stainless steel tube 6mm diameter to sense soil temperature at depths
- Monitors soil temperature essential for healthy plant growth
- Multiple probes interfactable on single pin using unique 64-bit ID burned on-chip

### ✓ Rain Sensor:

- Output Voltage 1-3 Vdc corresponds to dry and wet rain conditions
- Anti-Oxidation and Anti-Conductivity
- Provides accurate rain pattern, vital to healthy plants

### ✓ Air Sensor(BME280):

- Outputs: 0 to 100% (+/-3%) R. Humidity, 300-1100hPa (+/-1hPa) Pressure and -40°C to 85°C (+/- 1.0°C) Temperature
- High Linearity and high accuracy sensor provides long-term stability in parameter readings
- Accurate Air Parameters helps monitor and predict crop growth, bacterial growth and rate of gas exchange

### ✓ ADC (ADS1115):

- 4 ADC (Analog to Digital) channels
- 16-bit precision ADC, for precision sensor readings

### ✓ High Power Control:

- Control higher loads with small trigger voltage
- Provides Isolation to microcontroller from higher loads

### ✓ Water Submersible Pump:

- Submersible pump works on 9Vdc 10mA, with Adjustable flowrate
- Pumps water to heights upto 5-6 meters, suitable for different terrains

## Applications:



Crop Health Monitoring



Greenhouse M&C



Crop Yield Monitoring



Educational Purposes



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