



## The *Autonomous* Operation of Irrigation Controller



## When Sustainability Matters



Empower your farm OR landscape with intelligent water management and achieve sustainable irrigation practices with **SitSMART** Irrigation Controller. Our system optimizes water usage by recommending precise actions based on real-time data and advanced analytics.



#### How **SitSMART** Works:

The SIT-SMART system employs a comprehensive approach to ensure efficient and effective irrigation:

- 1. Real-Time Data Collection:** **SitSMART** seamlessly integrates with various wireless field devices to continuously monitor crucial irrigation parameters:
  - Soil Moisture Sensor: Detects overly dry or wet zones.
  - Flow Meter: Identifies inconsistencies in flow rate, such as leaks.
  - Pressure Sensor: Pinpoints pressure drops that indicate valve or pipe issues.
  - Valve Status: Confirms if zones received their scheduled irrigation.
  - Weather station : Incorporates rain, temperature, and wind data to adjust irrigation needs.
- 2. Intelligent Control & Optimization:** Utilizing the collected real-time data, **SitSMART** intelligently programs and controls your irrigation system. It takes a hybrid approach, adapting to your specific irrigation type and area to maximize efficiency and sustainability:
  - Automated SOVs Control: The system automatically opens and closes valves based on feedback from soil moisture sensors, weather stations, and flow meters.
  - Timing irrigation and ET-Based Planning: Daily irrigation schedules are precisely planned using evapotranspiration (ET) feedback from weather stations.



**3. Advanced Analysis & Detection:** interfacing **SitSMART** to **SitSaaS** IOT cloud based Platform , which it have a built-in algorithms provide sophisticated analysis:

- Compares actual vs. expected soil moisture levels after irrigation.
- Analyzes flow vs. scheduled volume to detect discrepancies like under-delivery (clogs, closed valves) or over-delivery (leaks, valves open too long).
- Evaluates irrigation effectiveness against evapotranspiration (ET) and current weather conditions.
- Identifies consistently dry zones, even after watering, which may indicate poor coverage or faulty nozzles.

**4. Continuous Learning & Adaptation:** The **SitSaaS** cloud based IOT platform system continuously learns

from historical moisture patterns and seasonal adjustments. **SitSaaS**, the system adapts and refines irrigation schedules and zone strategies over time for ongoing optimization.

#### **SitSMART & SitSaaS Key Benefits:**

- **Promote Healthy Landscapes:** Achieve precise moisture control and optimized irrigation scheduling for thriving, beautiful landscapes.
- **Drive Measurable ROI:** Realize significant water savings and reduced operational costs.
- **Reduce Water Usage:** Minimize non-essential water usage while maintaining vibrant greenery.

#### **SitSMART & SitSaaS Advanced Technology Integration:**

- Seamlessly connects with moisture sensors, automated valve controllers, and real-time data dashboards.
- Interfaces with IoT platforms for live performance monitoring and automated alerts.
- Leverages GIS mapping for precise zone-based control and enhanced site management.

#### **SitSaaS Performance & Reporting:**

- **Track Impact:** Establish a clear reporting framework to monitor water savings and sustainability efforts.
- **Share Results:** Easily communicate tangible cost savings and environmental benefits to stakeholders.
- **Enhance Efficiency:** Improve workforce efficiency by making data-driven irrigation decisions from anywhere.





## WHY **SitSaaS** Software as a Robust IoT Services

### Smart Platform Features

- Build Faster
- Connect Anything
- Deploy Flexibly
- Real-Time Data
- Drag, Drop, Deploy
- One Platform, Many Users

- Talk to All Devices
- Ready for Integration
- Grow Seamlessly
- Unlimited Configs
- Control from Anywhere
- Predictive Irrigation





## SitSMART : The Future of Sustainable Water Management

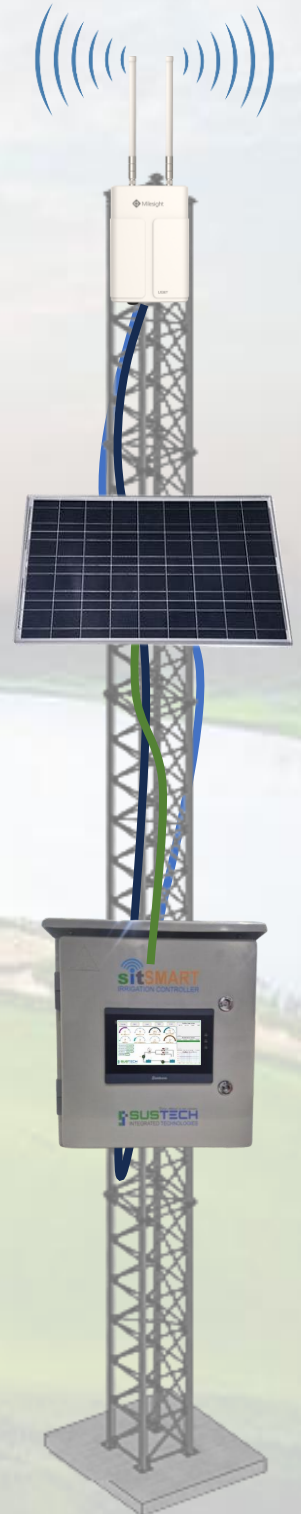
### SitSMART™ [The Smart Irrigation Controller Powered by LoRaWAN]

In an era where sustainability, efficiency, and smart technology are at the forefront of infrastructure, traditional irrigation systems fall short. Wired two-wire decoder systems are costly to install and maintain, require trenching, and are difficult to scale.

SitSMART™ is changing the game. As a LoRaWAN-based wireless irrigation controller, SITSMART eliminates the need for wired communication and ushers in a new age of smart, scalable, and sustainable irrigation systems.

#### Why SitSMART?

- ❑ **Wireless & Scalable:** One SITSMART controller can wirelessly manage **up to 1000 solenoid valves** and integrate **soil moisture sensors, I/O modules, water meters, level sensors**, and more.
- ❑ **Long Range Coverage:** Supports up to **5 KM in open areas** and **1 KM in urban environments**, with extended coverage through antenna and elevation tuning.
- ❑ **Solar & Battery Powered:** Choose from **battery-powered, solar-powered, or hybrid models** [fully off-grid and sustainable].
- ❑ **LoRaWAN Technology:** Low power, long-range, and highly reliable communications without dependency on physical infrastructure.
- ❑ **Modular and Flexible:** Easily retrofit conventional 24VAC SOVs to smart wireless valves or expand existing systems with plug-and-play devices



# SitSMART

## COMPLETE ECOSYSTEM

- ✦ **SitSMART Controllers:** For central logic and communication
- ✦ **Radio Gateway:** Ethernet/4G/Satellite backhaul
- ✦ **Soil Sensors:** Real-time, wireless moisture feedback
- ✦ **Solenoid Valve Controllers:** For 1,2,3&4 SOVs, available solar or battery powered
- ✦ **Water Meters & Level Sensors:** Real-time usage analytics
- ✦ **Weather Stations:** Track rainfall, wind, temp for smart decisions
- ✦ **Edge or Hybrid Controllers:** ready for Industry 4.0 integration
- ✦ **SitSaaS IoT Platform:** Centralized visualization and control with open APIs



Soil Moisture Integration



Valve Control



Weather Adaptive



SITSMART Controllers



Radio Gateway



Soil Sensors



SIT-SCADA IoT Platform



SIT-SCADA IoT Platform



Sustainable. Intelligent. Autonomous.

## KEY FEATURES



Remote Monitoring & Control



Energy Efficient



High ROI



Solenoid Valve Controllers



Weather Stations



Edge or Hybrid Controllers



Reduce carbon footprint



Expand easily



Operate safely

- ✦ **Soil Moisture Integration:** Monitor different depths (10cm to 90cm)
- ✦ **Valve Control:** Automate irrigation cycles—duration, frequency, and zones
- ✦ **Weather Adaptive:** Integrates with LoRa weather stations (wind, rain, humidity)
- ✦ **Remote Monitoring & Control:** From anywhere via SCADA or IoT platform
- ✦ **Energy Efficient:** Reduced operating costs with fewer breakdowns
- ✦ **High ROI:** Save up to **50% on water** and **cut labour hours in half**
- ✦ **Capex investment is less than conventional**

## SUSTAINABLE. INTELLIGENT. AUTONOMOUS.

With SitSMART, you:

- ✦ **Reduce carbon footprint** – no trenching, no cables, less plastic and copper
- ✦ **Use water smarter** – sensor-based, real-time optimization
- ✦ **Expand easily** – modular design supports future upgrades
- ✦ **Operate safely** – IP67/IP68 rated devices for all environments

Increase



reduce



Value Added is Our mission





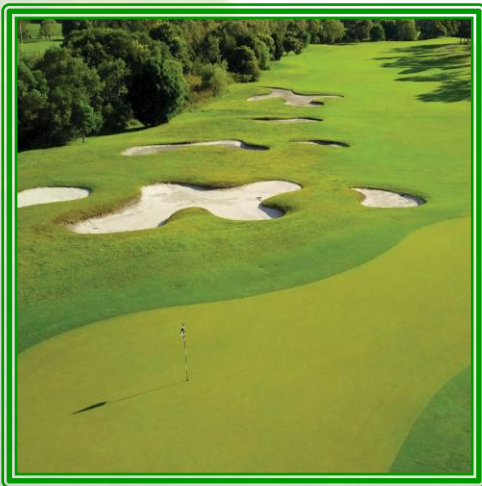
## Real-World Applications



**Municipal Irrigation**



**Smart Agriculture**



**Golf Courses & Sport**



**Urban Landscaping**

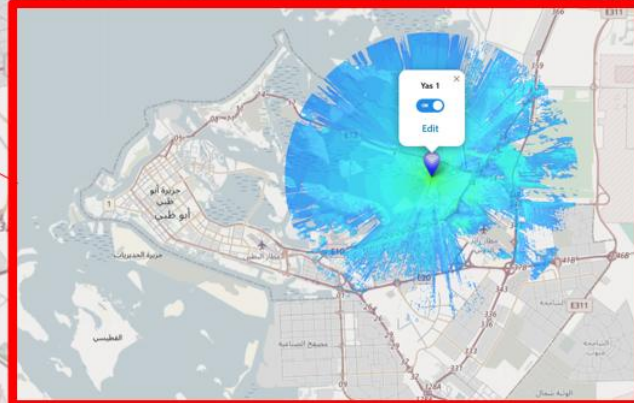
# sitSMART

## LORAWAN COVERAGE DEMONSTRATION BY HEAT MAPPING

LoRa technology has revolutionized the principles of irrigation and landscaping

Locating the Gateway  
24.482013385786207  
54.604584511388104

LoRa Gateway Coverage



One Wireless sitSMART

## CONTROLLER

Cover 1000 wireless solenoid valves and other wireless devices, soil moisture, isolation valves level, I/O, meter, with Long Range 5 KM



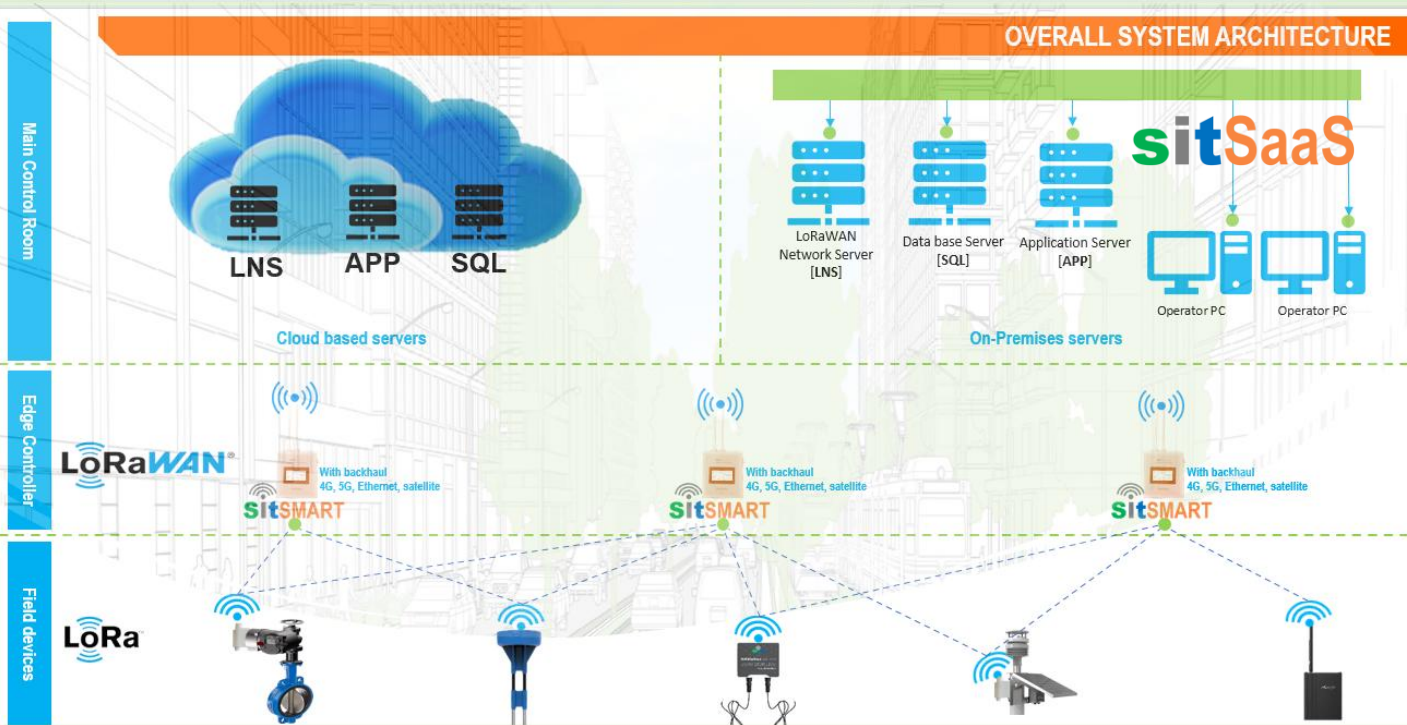
Value Added is Our mission



# sitSMART Irrigation Controller :

- ✓ ...cost-effective solution for landscaping, water flow control and monitoring
- ✓ ...developed based on end-to-end Wireless communication
- ✓ ...utilizing the LoRaWAN technology

## Game is changing



  
Edge Or Hybrid  
Controller

The Edge Controller TO INTEGRATE YOUR BUSINESS TO THE **Industrial 4.0**

Complete solution for SMART control and monitor applications Edge Controller **performance**, **connectivity** and **versatility** for the most varied demands of **Industry 4.0**



# Wireless Devices Integrated to



**LoRaWAN Gateway** A LoRaWAN Gateway serves as a pivotal link in Low Power Wide Area Networks (LPWANs), specifically designed for long-range and low-power communication in IoT applications. the LoRaWAN Gateway receives signals from numerous IoT devices utilizing LoRa modulation. With back hall 4G and Satellite.



**Soil Moisture** These sensors are designed to measure and monitor real-time soil moisture data. these devices wirelessly transmit the collected data to a gateway, allowing farmers and agricultural professionals to make informed decisions about irrigation schedules, optimize water usage, and enhance overall crop yield.



**Solenoid Valve Controller** The Solenoid Valve Controller stands as a key component for optimizing fluid control processes. The solenoid Valve Controller enables remote monitoring and control, providing real-time insights into valve status and performance.



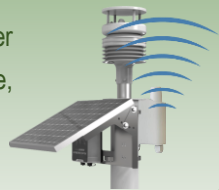
**Water Level** These sensors offer precise and reliable distance measurements for bodies of water tanks. With the ability to transmit data wirelessly over long distances using LoRa communication, these sensors provide real-time water level information to a central monitoring system.



**I/O LoRa** The LoRa I/O device serves as a powerful solution in our system, enabling the seamless monitoring and control of motors and valves through the utilization of Long Range (LoRa) technology. With its long-range capabilities, the LoRa I/O device ensures reliable and real-time information transmission, allowing for remote supervision and control of industrial processes.



**Weather Station** is an advanced sensor system designed to capture and transmit real-time weather data using (LoRa) technology. Equipped with a range of environmental sensors, including those for temperature, humidity, rainfall, wind speed, and direction.



**Isolation Valve** The quarter-turn isolation valve will open and close via LoRa communication, these isolation Valves are applied per sector. Upgrading the communication of the actuator to work in wireless LoRa technology makes the **Autonomous** achievable



**Water Meter** The LoRa Water Meter is an advanced device designed to accurately measure and monitor water consumption in various applications using Long Range (LoRa) communication technology. Equipped with precision sensors, this meter provides real-time data on water consumption, enabling efficient management and conservation.







One **SitSMART** wireless irrigation controller minimum cover up to **5 KM in open areas** and **1 KM in urban environments** coverage area and more subject to antenna gain

**SitSMART** wireless irrigation controller, programmed to consider operation requirements for example, It controls when the irrigation valves open or close & determines how long each valve stays open,, it regulates the **water application** to your landscape

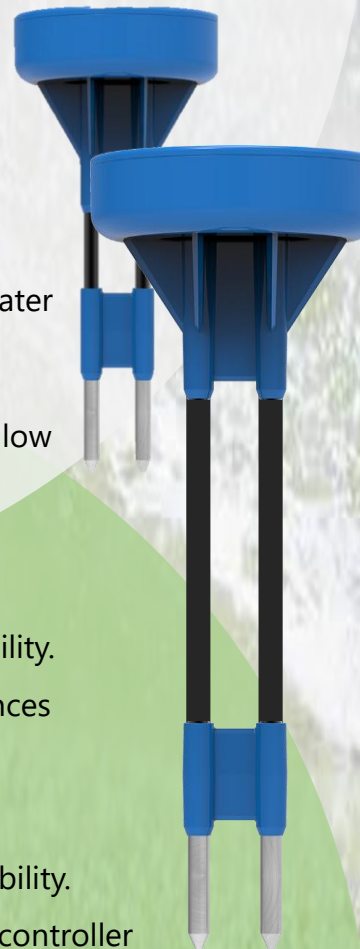
The **SitSMART** can programmed for various tasks :

- **Soil moisture** :and can be variable subject to the wireless soil moisture depth [ 10cm, 20cm, 30 cm, 45 cm, 60 cm 90 nm ].
- **Water duration**: Set how long each valve should stay open.
- **Start times per day**: Specify when the system should run.
- **Days of the week**: Choose the watering days.
- **Weather** : Also based on Rain and wind
- Will control and monitor with highly flexibility.

Wireless **SitSMART** irrigation controllers ensure efficient water distribution, keeping your plants healthy.

**SitSMART** IRRIGATION CONTROLLER efficiency as follow

- Saving water and contributing sustainability.
- Saving on Operation Cost less maintenances
- No two wired cables Failure
- Saving on capex cost
- Will control and monitor with highly flexibility.
- Extendable coverage or process in same controller





**SitSMART wireless Irrigation Controller can Control the Conventional Irrigation Controller SOVs wireless**

Upgrade 24VAC Existing SOVs to Wireless SOVs for SMART Irrigation



IP 68 LoRa wireless Device



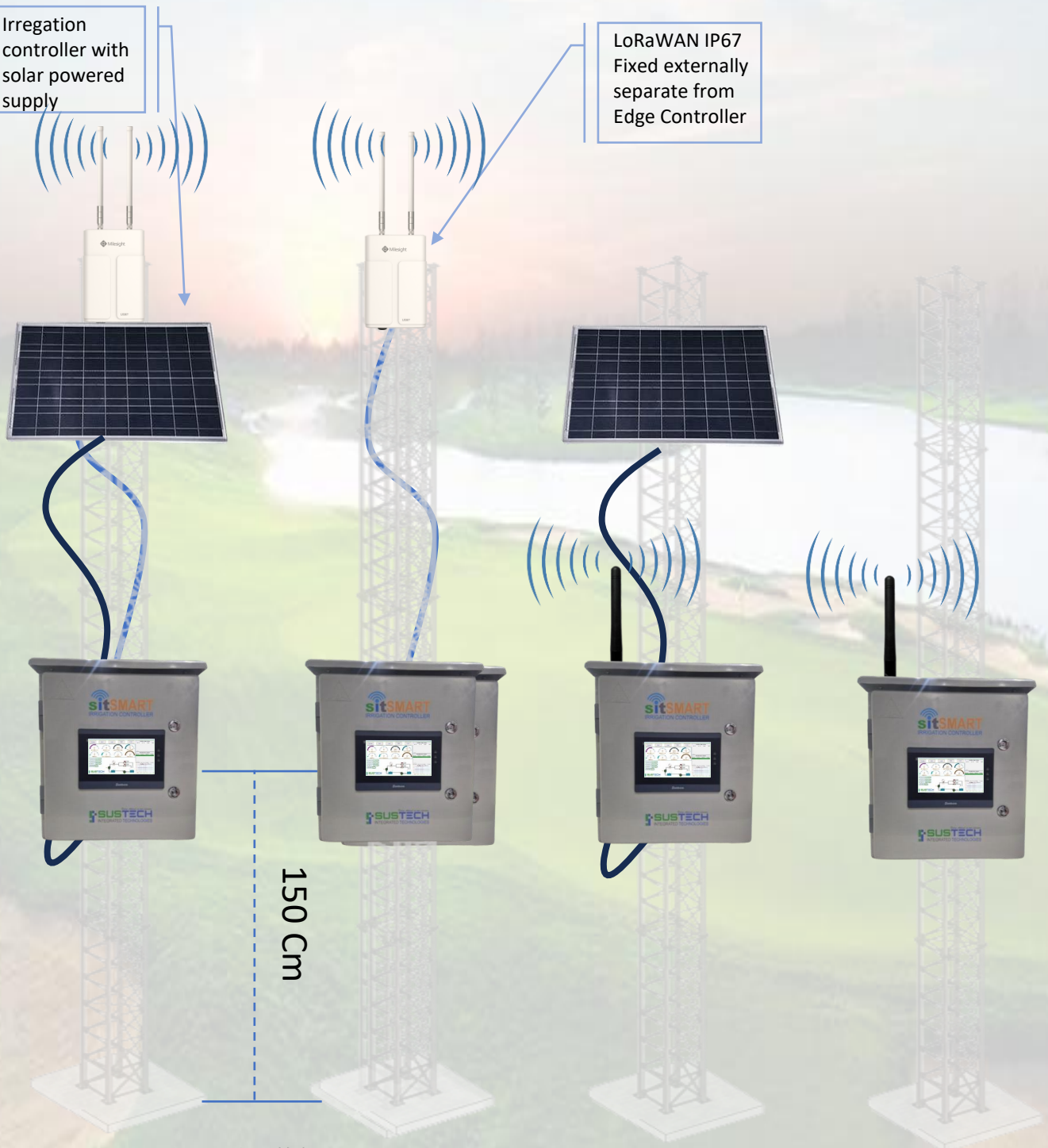




## SitSMART wireless Irrigation Controller different design subject to the Location and Application

Irrigation controller with solar powered supply

LoRaWAN IP67  
Fixed externally  
separate from  
Edge Controller



Value Added is Our mission



## Part No.

Part No.	Description
SITSMART - 01	Irrigation Controller with OP and internal Gateway
SITSMART - 02	Irrigation Controller with OP and external gateway
SITSMART - 03	Solar powered irrigation controller with OP and internal gateway
SITSMART - 04	Solar powered irrigation controller with OP and external gateway
SIT-UL01	Battery powered Ultrasonic level meter
SIT-SV021	Solar powered Solenoid valve controller for 2 SOVs
SIT-SV022	Battery powered solenoid valve controller for 24VAC SOVs
SIT-SV063	Solar powered solenoid valve controller 4 SOVs
SIT-SV084-[2"]	Latch type SOVs different sizes [ ½", ¾", 1", 1 ½", 2", 3", 4" ]
SIT-IO01	Solar powered I/O remote controller
SIT-SM01	Battery powered Soil moisture 10CM
SIT-SM02	Battery powered soil moisture 20Cm
SIT-SM03	Battery powered soil moisture 30 cm
SIT-WM01	Battery powered water meter 50mm
SIT-WM02	Battery powered water meter 100mm
SIT-WS01	Battery powered weather station
SIT-PH01	Battery powered ph soil measurement
SIT-LNS	On-prem LoRaWAN network server
SIT-SCADA	Irrigation IOT platform with APIs to enhance data analytics and operation efficiency.



FEEL SAFE WITH  
YOUR IRRIGATION -  
AT ALL TIMES

INTELLIGENT  
IRRIGATION BASED  
ON SENSORS

SAVE 50% OF WATER

SAVE HUNDREDS OF  
WORK HOURS

CONTROL YOUR  
IRRIGATION  
WHEREVER YOU ARE

SOLAR POWERED

CONSISTENT  
IRRIGATION

INCREASE YOUR  
CROP YIELD WITH  
30% IN FARMING

NO CABLES NEEDED



Office 1:  
GF Office Accelerator Building,  
Masdar City  
T : +971 2 621 4995



Office 2:  
No. 101, Entrance No. 3  
Rabdan Mall  
T : +971 2 626 8774