



CymbIoT
Making IoT Smarter



**Cellular Tower
Management**

CymbIoT Cellular Tower

ENERGY | SECURITY | ACCESS CONTROL

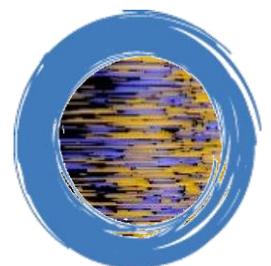
The CymbIoT solution for Cellular Tower is a modular platform that delivers energy saving capabilities based on integration of external radiation and temperature sensors with internal light and A/C controls.



Cellular Tower control facilities expand considerable energy to maintain required interior temperature and humidity levels. CymbIoT offers a simple and effective solution: integrating facility A/C systems with external solar radiation and temperature sensors, and feeding ongoing external data to the CymbIoT system, which adjusts internal A/C to maintain optimal conditions at all times.



With optional extras such as security services, access control, smart locks, and more, CymbIoT provides cellular tower operators and integrators with an ideal solution for energy and cost savings, as well as operational and data efficiency.



BASIC SOLUTION

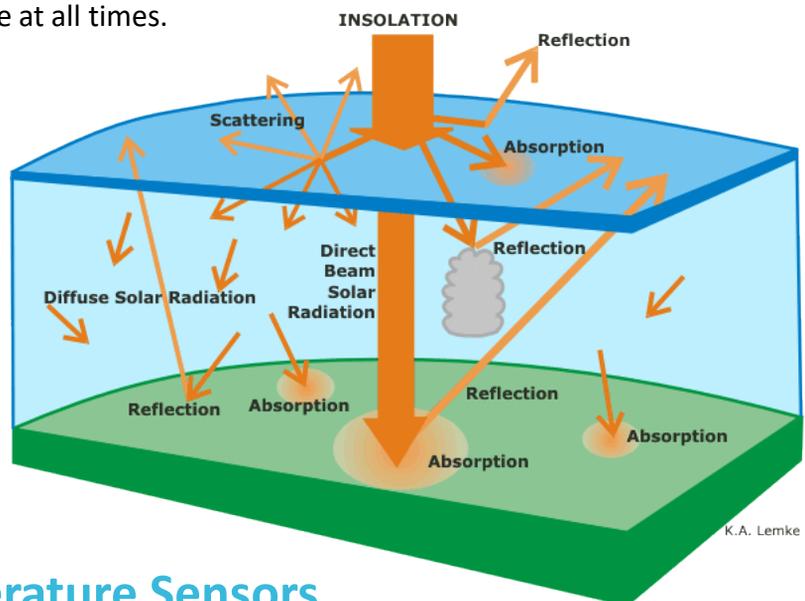
Overview

Cellular tower control & maintenance facilities usually utilize internal A/C with environmental sensors to maintain optimal conditions inside the facility. This solution leads to massive energy expenditure: by the time internal conditions trigger the A/C, the whole interior requires temperature adjustment, which leads to massive energy waste. The CymbloT solution optimizes energy output by engaging the A/C based on data from external sensors, processed by the CymbloT engine, which then manages A/C operations strategically in order to continuously maintain optimal interior environmental conditions.

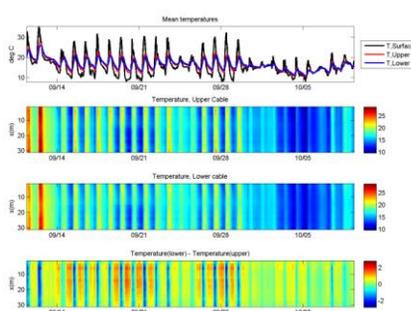
Radiation Sensors

Solar radiation sensors measure solar radiation for evapotranspiration (ET) and Temperature/Humidity/Sun/Wind (THSW) Index.

This information enables the CymbloT engine to utilize predictive algorithms in order to manage the A/C and maintain optimal temperature at all times.



Temperature Sensors



External temperature sensors provide real-time data regarding external conditions, and enable the CymbloT to analyze current and expected environmental effects in order to manage internal facility conditions at an optimal level.

ADDITIONAL SERVICES

Using CymbloT 's flexible integration capabilities, providers can integrate a range of additional services and capabilities into the maintenance facility management system, making the solution more effective, efficient, and safe. Additional services can range from data and operational fusion of existing systems, through smart interfaces between systems, to integration of 3rd party sensors and elements.

Examples of CymbloT Additional Services include:



Security

Integration of cameras/motion sensors/audio sensors with alarms and Security personnel.



Access Control

Integration of Smart Locks, RFID tags, cameras, LPR readers etc. in order to automatically permit/deny access to the tower and facility.



Visual Analytics

Server-side analytics for existing cameras, adding capabilities such as motion & speed sensing, people counters, etc.



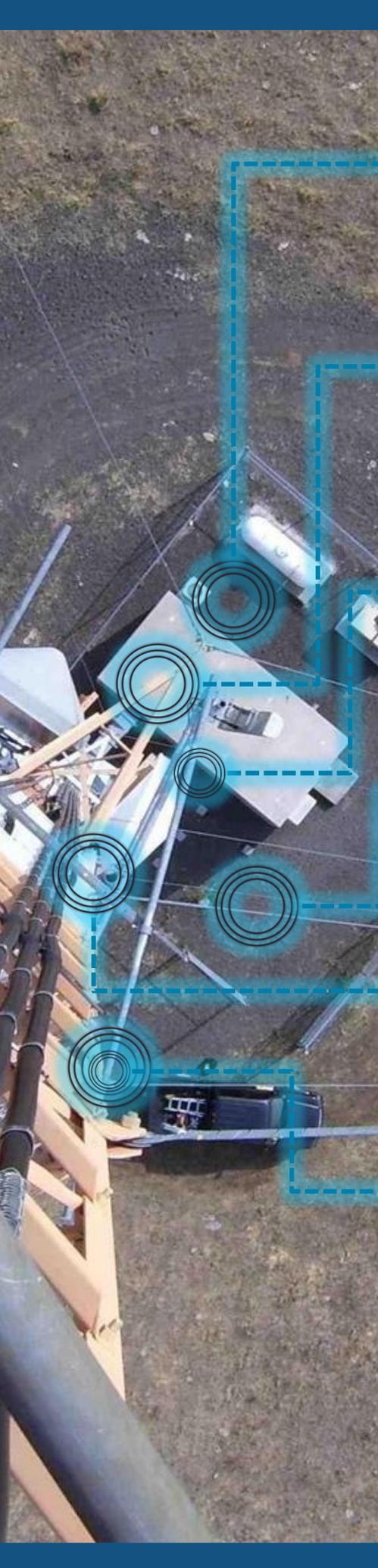
Environmental Monitoring

Integrating additional environmental sensors such as pollution sensors, air quality sensors, rain level sensors, and more.



Dashboards

Data and operational input fusion in an executive Dashboard interface for one-sight functional overview.



Environmental Sensors

Air quality/pollution/water quality sensor for tracking environmental conditions and analyzing data.



Smart Locks

Smart facility locks that can utilize biometrics, RFID cards, or Smartphone IMSI numbers for access control



Internal A/C System

Internal A/C system that responds to triggers from CymbloT based on data from radiation, temp., and environmental sensors.



Cameras w/Analytics

Surveillance cameras with Visual Analytics to monitor site and identify unusual activities/movements.



Temperature Sensors

External temperature sensors monitoring external temp. levels in real-time.



Radiation Sensor

Measures solar radiation for evapotranspiration (ET) and Temperature /Humidity/Sun/Wind (THSW) Index.

CymbloT Command & Control

Provides data fusion and management of all tower data – external & internal.



Energy



Event

Temperature rises over an hour.



Detection

Temperature and radiation sensors identify rise.



Response

CymbloT C&C identifies temperature trend.

Access Control



Event

Technician attempts to enter tower



Detection

Smart Lock identifies technician Smartphone IMSI



Response

CymbloT C&C matches IMSI with authorized persons list.

Safety



Event

Animal approaches vulnerable infrastructure.



Detection

Video analytics identify presence & timing.



Response

CymbloT C&C analyzes data and implements procedures:.



Switches on A/C at optimal temperature.



Shuts down any nonessential systems.



Updates Energy Dashboard.



Notifies site manager by text message.



Opens facility door.



Switches on internal lights.



Updates tower maintenance record.



Notifies site manager by text message.



Directs cameras towards identified event.



Alerts security



Turns on external lights to alarm animal.



Notifies site manager by text message.



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CymbIoT's mission is to design, implement and deliver advanced Internet of Things (IoT), Video Management Solution (VMS), and Command & Control (C&C) platforms. We empower end users to configure and manage integrated networks of all types and scales - from Smart and Safe Cities, through Transportation Hub security, to Smart Buildings and Enterprise management.

With millions of sensors across numerous verticals using our products to deliver actionable intelligence and real-time response capabilities to customers worldwide - we have the experience, know-how and technology to deliver real world solutions that work.

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