Temperature Sentinel

Continuous Monitoring in Retail

- **IEEE 802.11 Wi-Fi Technology**
- **SMS/Email Alarms**
- **On-board data storage**

The Problem

Supermarkets use various cooling equipment (refrigerators, freezers) to store perishable food.

Multiple factors can cause the temperature of this equipment to vary or significantly increase. For example, a power shortage, a blown fuse, or any mechanical failure of the refrigerator can cause this problem. The largest freezers are usually under alarm, to signal any unusual temperature increase and schedule maintenance.

However, smaller/mobile refrigerators are usually not under alarm - usually causing a loss of hundreds of dollars of wasted food. Also, to maintain quality standards, quality insurance personnel usually keep a manual record of the temperature evolution of the various refrigerators.

Alarm systems exist, but are usually expensive and do not offer data logging capability.

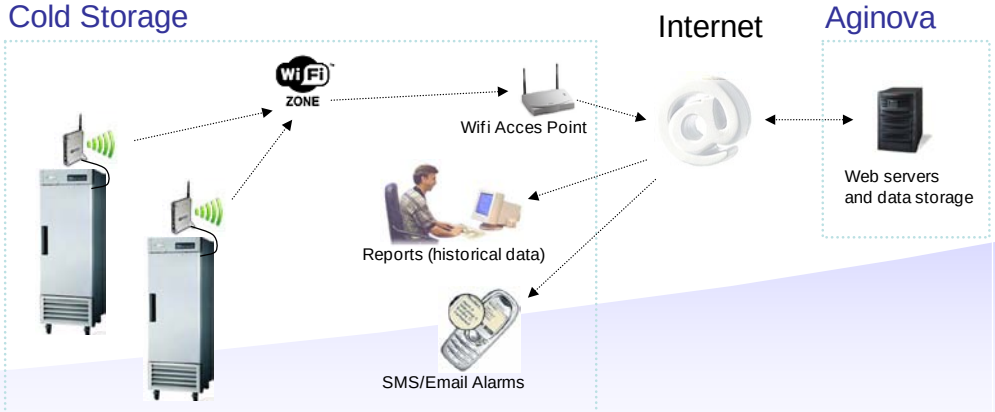
The Solution

Aginova is proposing a novel low-cost solution to the aforementioned problems. Most of the supermarkets are already equipped (or could easily be equipped) with a Wifi wireless network.

We propose to install Wifi Temperature Sensors in refrigerators, to constantly monitor temperature and store this information on a remote server.

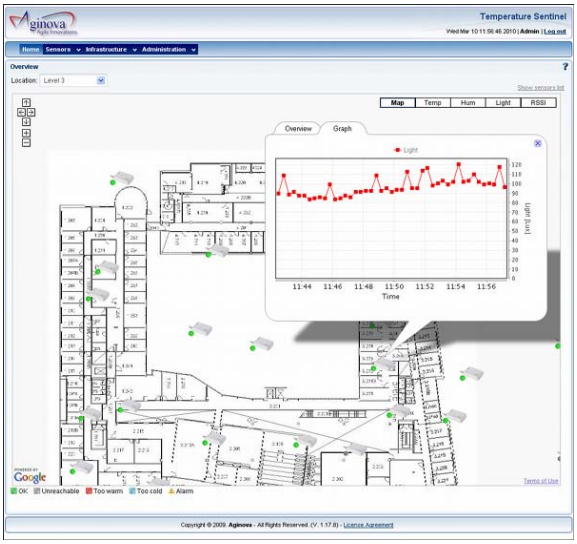
The system would have alarming capabilities – for example if the temperature goes above a certain threshold, an email/SMS can be sent for immediate maintenance.

The system will also store - on a hosted server - the temperature history of all the equipped refrigerators. The low cost solution is easy to install and configure.



Overview of the solution

Sensors are installed on the refrigerators to be monitored. Data is collected by the sensor and sent wirelessly (using your Wifi network) to Aginova's hosted servers or a privately installed server.



SMS/Email alerts

The system will monitor the temperature of the refrigerator(s) at a configurable rate. If the temperature goes above a certain limit, an alert is triggered and the system will send an Short Message Service (SMS) to inform you of the problem. It is also possible to send email alerts.

Web portal reports

Various analysis tools are also available like graphs, trends, XML data export, etc. There is no longer a need to manually write the temperature for quality purposes.

About Aginova

Established in 2004 Aginova is complete solution provider of wireless sensor networks for commercial, industrial and military applications. Our customers include many industrial companies where we provide monitoring solutions for the aging infrastructure. Industrial customers include BP, Conoco Phillips, DNV (Norwegian company) and others. We have also been working with the US military for environmental monitoring application. Aginova is established several partnerships with research institutes for the development and optimization of the sensor performance; these include Southwest Research Institute and the Pipeline Research Council International. Aginova has sales offices in U.S. and R&D offices in Switzerland.

Contacts

Please feel free to contact us for more information.

European Office:
Aginova Sàrl
Rue Pré-du-marché 23
CH-1004 Lausanne, Switzerland
Phone: +41 79 792 81 62
info-ch (at) aginova.com

U.S. Office:
Aginova Inc.
3 Chambry Court
Freehold, NJ 07728, USA
Phone: 732-780-7065 Fax: 732-879-0248
ashok (at) aginova.com

Datasheet

Sensor Unit

Data Storage	At least 21 days of sensor data at sampling rate of once per minute (10 days with optional T&RH probe)
Data Visualization & Reporting	Desktop Software, Web Hosted or Enterprise Portal
Alerting System	Email or cell phone alerts when sensor crosses set threshold values (depending on Software version)
Power supply	Using a single AA 3.6V Lithium battery - Expected life of up to 5 years with measurements every minute
Operating conditions	Operating temp. range: -10°C to +60°C Operating humidity range 0% RH to 90% RH non-condensing
Physical dimensions	3.3”L X 2.5”W x 0.8”H (82mm x 62mm x 21mm) Weight: 2.3oz (66g)
Regulatory	FCC
Typical power emission	33mW

Wi-Fi

Radio Protocol	IEEE 802.11 b/g compatible (g-only not supported)
Supported rates	1, 2 Mbps only
Security	WPA2-PSK (AES) WPA1-PSK (TKIP) WPA1+2 PSK (AES+TKIP) 802.1x EAP-FAST WEP (40bit, 104bit)

Networking

Addressing	IP v4 static or DHCP address
Protocol used to communicate with server	SNMP/UDP, UDP
Ports	161-163 on both server and sensor

Sensor unit accuracy

External Temperature Sensors	Unit accuracy: ±0.25°C (at 25°C)

Probes

External Temperature Sensors	Up to 2 Identical Probes can be attached. XPROBE-TEMP-0002 Range: -30°C to 10°C Resolution: 0.1°C Accuracy: ±0.5°C (-20°C to 10°C) or ±1°C (-30°C to 10°C) XPROBE-TEMP-0004 Range: 0°C to 70°C Resolution: 0.1°C Accuracy: ±0.1°C
Light Sensor	Responsivity: 400-1000 nm (spectral)
Internal Ambient Humidity (SHT11 version only)	Range: 0-100% RH Resolution: 0.03% RH Accuracy: ± 3.0% RH
Internal Ambient Temperature (SHT11 version only)	Range: *same as unit operating range* Resolution: 0.01°C (typical) Accuracy: ±0.4°C (typical at 25°C)

Aginova Inc.
3 Chambry Ct.
Freehold, NJ 07728- USA
Tel: 732-780-7065
Website: www.aginova.com / Email: info@aginova.com