Proposal for Energy Savings

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| Prepared for: | **Timbercreek Asset Management** |

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| From: | **Vlad Platek, P.Eng**  VP – Engineering and Operations |
| Date: | September 12, 2014 |
| Subject: | **SensorSuite Proposal for Energy Savings** |
| Project Location: | **8950 Wyandotte, Windsor** |

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| Technology Partner: | **Sensorsuite Inc.** |

## BACKGROUND

PLATEK SERVICES INC. is an engineering and project integration company specializing in energy efficiency and HVAC engineering design and project management services. We are a certified Sensor Suite Inc. reseller.

SensorSuite is an Internet of Things infrastructure company involved in the capture, processing and delivery of real-time building information to property managers in the multi-residential, commercial, industrial, and consumer markets.

## PROPOSAL OVERVIEW

This proposal is a presented to the Timbercreek Asset Management to reduce exposure to environmental anomalies, such as high temperature, high humidity, high water levels, and similar conditions. Our solution provides your energy staff with real time access to necessary information, such as status environmental conditions, high and low level alerts and alarms, and the ability to modify information remotely.

**PERFORMANCE REQUIREMENTS**

**Existing System Layout**

**(BEFORE)**

* 39 suites over 5 floors
* The Power Panel in each unit is located close to entrance on a wall which is adjacent to the kitchen
* Total power used for heating around 250,000 kWh per year as base.

**Sensorsuite System Layout**

**(AFTER)**

We will supply one temperature controller (Suitestat) for every unit in the building.

This Suitestat, together with the solid-state relays and 12vdc power, will be recessed just below the power panel with a ventilated cover. Relays will be connected to the breakers. Low voltage power will come from the suitestat trigger relay. There will be two solid-state relays to control the heating breakers in the case of 2 x 20 amp double pole breakers.

This system will connect each individual unit to the cloud dashboard with complete monitoring and control. Expected savings of 20%-30% would result in over 50000 kWh in savings in consumption.

## MONITORING AND VIEWING

We provide a holistic view of your property through our cloud dashboard. View the dashboard from any smart phone or internet-connected device that has been enabled on the system. The information will be readily available to Operations staff, Management, or any service individuals provided with the password access to read the information:

Management can set variable limits to control their units. If there are any alarms set off based on a limit reached, then emails and text messages can be sent to individuals authorized to receive these alerts.

We can send texts and emails to:

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| 1. Management PC/cell phone 2. the Operations Staff PC/cell phone 3. Maintenance Manager’s PC/Cell phone 4. A designated person authorized by the Owner     The information will be available for over 12 months and will be accessible anytime, from anywhere by using a simple browser.  Additional types of alerts can be added to the system. | SmartPhone jpg.jpg |

## INSTALLATION AND SERVICING :

Sensorsuite installation will include:

* All monitoring components to complete a full internet ready monitoring system.
  + Gateway
  + Wireless Transmitting and Receiving equipment
  + All of the wireless data collectors (XS4)
  + All of the sensor probes (temperature, humidity, power, etc)
* All low voltage power supplies
* All data cables to interconnect the Sensorsuite hardware.
* System will be fully Internet browser accessible with remote monitoring.
* A data centre Dashboard will be provided
* Includes password protected access to monitored data
* Notifications via EMAIL and TEXT
* Internet service activation and M2M cellular connectivity.

## RESPONSIBILITY FOR INSTALLATION:

PLATEK SERVICES INC. Will assume responsibility of all installation of the wireless SensorSuite solution for the above-mentioned site.

## TRAINING:

To better suit our Customer’s needs within its operational boundaries, SensorSuite will provide training to our certified contractor partners on:

* Hardware capabilities
* Installation
* Servicing
* Maintenance

In addition for each option, SensorSuite will provide a minimum of one-year parts warranty. Continued support and paid up warranty will be maintained for 10 years.

Secure Infrastructure for Today's Connected World

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| C:\Users\Vlad\AppData\Roaming\PixelMetrics\CaptureWiz\Temp\4.jpg | Security Encryption: Communication between devices and the SensorSuite ™ cloud is fully encrypted by 128-bit TLS encryption using the latest and most secure encryption algorithmsFirewalls: all systems are protected by firewalls, which block all traffic except that which is necessary for site operationsCode review: all code is subject to a code review process, with a strong focus on securityPermission management: all permissions and operations are managed under the principle of least privilege |

## Backups

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| **Scheduled:** SensorSuite does regular off-site backups of its customer data; this data is fully encrypted using 2048 bit encryption keys and stored in a secure location | C:\Users\Vlad\AppData\Roaming\PixelMetrics\CaptureWiz\Temp\3.jpg |
| **Access Control:** Access to backups is strictly limited to employees that require access |

## Data Retention I Audit Trail

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| Policies and Procedures **Access:** Only employees with direct production responsibilities have access to the production environments / infrastructure; **Separation of Duties:** We employ a strict separation of duties policy; management tools and interfaces are assigned on a as-needed basis and follow the principle of least privilege **Need to Know Basis:** Access to customer security keys by employees is strictly restricted on a need-to-know basis. Our resellers and installers do not have access to customer security keys; these are pre-assigned at the factory and never given out **Consequences:** any unauthorized access to customer data will result in immediate employeetermination  C:\Users\Vlad\AppData\Roaming\PixelMetrics\CaptureWiz\Temp\5.jpg | **Comprehensive:** All customer activity is logged for security purposes; this includes IP addresses date/time of activity and basic description of action  **Longevity:** This information is kept for a minimum of 5 years |

## “PRICING” - TOTAL SOLUTION

## INCLUDES THE BASE SYSTEM COST WITH GATEWAY AND COMMUNICATION EQUIPMENT AND ALL THE SUITES EQUIPEMENT.



## Price Breakdown

There are 39 Suites, over 5 floors. Temperature monitoring and control is installed for each suite at the following cost:

**19x - Two-Bedroom Suites**

**Includes (per unit):**

* 1x – Suitestat controller
* 2x – Temperature probe
* Installation

**For a total of $9600.00**

**20x – One-Bedroom Suites**

**Includs (per unit)**

* 1x – Suitestat controller
* 1x – temperature probe
* Installation

**For a total of $9350.00**

Additionally, there are 5 main corridors. Temperature monitoring and control is installed at the following cost:

**5x Corridors**

**Includes (per corridor)**

* 1x – Suitestat controller
* 2x Temperature probe
* Installation

**For a total of $2500**

**Monitor occupancy for additional energy savings (OPTIONAL)**

**Includes (per unit)**

* 1x – Motion Probe
* 1x – CO2 probe

**For a total of $6100**

There is also a single domestic hot water heater on location. Monitoring and control is installed at the following cost:

**1x Hot Water Heater**

**Includes**

* 1x – BoilerLink controller
* 3x – temperature probe
* Installation

**For a total of $1500**

**Cloud Dashboard powered for $159/Monthly**

As you see in the pricing schedule, there is a generous component of incentives that can drive this project forward.

Hydro incentives for demand control are ending at December 31, 2014. The remaining incentives in 2015 will be likely 50% less than today.

We estimate that the payback for this project will be under 2 years, subject to the control options that can be used. By avoiding heating and cooling concurrently, this can generate savings. Also, by using setback scheduling to lower the operating temperatures at night, and on weekends, this will generate more savings.

By programming electric heating to be turned off, so that cheaper fuel, like natural gas can be used to heat the premises, you will save on energy.

If you are interested in other features of the Sensorsuite wireless monitoring and control system we can discuss these when we meet.

The good news is that once the wireless infrastructure is installed in the building, as part of this proposal, you can easily and inexpensively expand the remote monitoring and control system to other parts of the commercial complex to monitor such things as alarms, water, gas, light and power.

Please review this proposal to ensure we have addressed all of your requirements.

We appreciate your business.

If you have any questions, please contact me.

Yours truly,



V.S. Platek, P.Eng.

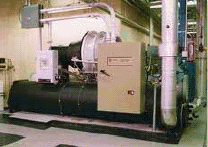
VP – Engineering and Operations

**ABOUT PLATEK SERVICES INC. (consulting engineers)**

**PLATEK SERVICES INC.** is an engineering company specializing in electrical, mechanical and HVAC engineering for commercial and multi-residential facilities and critical system installations such as LAN rooms, computer rooms, call centres and similar installations. With GTA offices in Toronto and Mississauga, we are ready to cater to the unique needs of those markets and to develop strong team relationships with building owners, architects, interior designers, specialty consultants, tenants, building managers, local contractors, and suppliers.

The engineering staff of **PLATEK SERVICES INC.** currently provides specialized services in the following areas:

1. Energy audits, power measurement and management services
2. Lighting retrofit design and implementation
3. Boiler, chiller and steam plant retrofit design and implementation
4. Building automation system design
5. UPS, Emergency generators, Critical power, critical HVAC design



1. Tenant design services including Electrical, Mechanical,

HVAC, Voice and LAN room design

1. Access Control Security Systems, CCTV, Duress and Monitoring systems
2. Fire alarm and life safety design
3. Communication and fibre Infrastructure with cable management services
4. Air Quality assessments
5. Project Management services

Environment affects everything we do. Things like poor lighting conditions, quality of air, quality of power and poor reliability of data and fibre networks will eventually lead to business disruptions. We are here to help you solve these existing or pending environmental problems. We are committed to providing you with great service and a high level of expertise. We want to establish strong team relationships for now and into the future.

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| lightining | Getting the job done right is the driving force behind our commitment to becoming your partner in the engineering design process. From start to finish and beyond our staff will pay attention to your needs and will provide engineering services and add project management experience to save you time and money.  Our team of engineering professionals provides seamless engineering support and in-house management to every client and every job. Ensuring client satisfaction is our goal. It is the reason we work so closely with designated project managers, design teams and clients to ensure projects are well coordinated and executed. |

We draw on our extensive experience base and this allows us to apply expert technical knowledge to each project. Offering our technical guidance and supervision throughout the process means we can ensure that your high standards are met, from start to finish and beyond.

**Expertise and Experience.**

**Your partners, helping you succeed.**

**ABOUT SENSORSUITE INC.**

## General Profile:

1. SensorSuite Inc.
   1. 1029 King St West, Toronto, Ontario, M6K 1M8
   2. 1.855.773.6767
   3. Contact:
      1. Vlad Platek, P. Eng. - VP – Engineering and Operations
         1. [Vlad@SensorSuite.com](mailto:Vlad@SensorSuite.com)
         2. 416.875.8904
      2. Salman Habib, VP Business Development
         1. [Salman@SensorSuite.com](mailto:Salman@SensorSuite.com)
         2. 647.707.9390
2. SENSORSUITE INC. (3 Years) (Technology Partner)
   1. SensorSuite has developed a real-time building intelligence™ cloud platform for reducing operational risks and improving the performance and efficiency of buildings and real estate. The company has created leading-edge sensors, cloud analytics, building controls and software interfaces that reduce energy costs, increase occupant comfort and allow owners and occupants to extract more value out of their space
   2. Areas of Expertise:
      1. Localized Wireless communication systems (Fog Computing)
      2. Cloud based architecture and Big Data
      3. Real-time Analytics for Monitoring and Control

**ABOUT SENSORSUITE INC**

## Technical Profile:

1. Dashboard Overview
   * In order to provide real-time data from any range of meters and machinery, SensorSuite (SSI) interfaces into existing meters and machinery and wirelessly communicates this data through it’s local on-site SensorSuite Matrix™ gateway to the SSI Cloud. The SSI Cloud securely stores all the data on Amazon Cloud servers utilizing 128-256-bit encryption. The types of Sensory information SSI are able to collect is listed below:
     1. Electricity – by linking CT’s to the main lines, SSI is able to communicate energy consumption per device, machine, etc.
     2. Gas – Natural Gas and other gases
     3. Water sensors that can instantly detect water on the floor or a level
     4. Motion – SSI is able to setup motion sensors to gather occupancy data. Each data point speaks to the Matrix™ gateway through an advance mesh network.

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* + 1. Carbon Monoxide - SSI is able to setup CO sensors to gather CO levels data in garages. Each data point speaks to the Matrix™ gateway through an advance mesh network.
    2. Carbon Dioxide – The ability to setup CO2 sensors in main rooms to estimate volume of people in a room.
    3. And many more including external weather.
  + The SSI dashboard is capable of displaying as many or as few data points as needed by the building. Depending on the in depth level of sensing required, each site can monitor between 1-10+ different kinds of points. It is able to represent this data as icons, bar graphs, line graphs or customized to virtually any representation (xls, csv, etc).
    1. Unlimited number of staff can setup independent logins to access the same data with different access levels and compare with fellow employees.
    2. The dashboard is developed as both an intuitive touch screen and responsive design to adjust to virtually any screen size on any browser.

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## Information Management and Reporting:

* Each user can be setup to have a defined authorization, from just monitoring to control facilities managers.
* SSI is able to utilize existing technology to interface into non-digitally and digitally metered utilities by utilizing off the shelf FCC approve measurement instruments with digital outputs and displaying this data in real-time.
* The data is always stored on the Amazon cloud and can be stored in independent data centers as either primary or back-up storage facilities.
* Missing Data is handled in two ways. Procedurally (If meter is not sending reading), would require a visit by an engineer and would be viewed as a maintenance item. Visually, SSI is able to interpolate holes in the data by taking previous and projected values and creating a bridge to visually show any missing data. Or simply, not display this data.

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* The SSI cloud system is able to generate reports such as:
  + Facility Performance
  + Facility Comparisons
  + Energy Profiles
  + Consumption Reduction
  + Demand Reduction
  + As well as any other range of customized reports based on client needs.

### Design and Functionality:

* + The SSI cloud system is easily expandable from one to hundreds of facilities by setting up independent Matrix™ gateways with localized intelligence as well as centralized cloud intelligence for monitoring and control.
  + The system has various user interfaces to provide information and interaction to the various stakeholders.
    1. Executives
    2. Facility Managers
    3. Operation Managers
    4. Other on-site staff and guests
    5. These can be skinned in different ways to provide meaning to all the different stakeholders.
  + Data is gathered in high volumes over time and the representation of this data in a meaningful way is crucial.
    1. Real-time and historical comparisons on utility consumption.
    2. All normalized for Occupants, Weather and other variability.
    3. All data is presented in an interpretable way to all stakeholders.
    4. Have summary views of all facilities under monitoring and control and provide real-time consumption comparisons to instill friendly competition on being more efficient. As well as offer some suggestions through a local feed on how to improve efficiency through changing minor habits.
  + Facility managers will have the capability to select the: charts, tables, gauges, metrics that are to be graphically displayed for the stake holders and rotate based on usage responsiveness.

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* + The platform would allow for various apps to be overlay on the system for integrating other data points… Weather, traffic, events, etc… these would also play a part in the integration of automated control systems. Pre-heating or cooling, based on estimated inflow of facility personnel.

### Hardware Components:

* + Depending on the hardware needed to access data from non-digital meters, pulse outputs, data loggers and/or BAS, SSI would provide our own hardware solution to create this capability. In order for access to this information in real-time the information must be gathered at the source.
    1. For data collection:
       1. There would be a various hardware used to bridge any gaps in ability to extract data from meters. In many cases, SSI would be able to use non-revenue grade meters with digital or pulse outputs to move data up the channel.
    2. Transmission hardware:
       1. SensorSuite has it own proprietary wireless mesh technology to transport the data from collection point to on-site servers. This wireless hardware is overlay on top of meters or interfacing hardware.

### Training and Support:

* + SSI will provide system training to review:
    1. How to create user groups,
    2. How to create energy saving profiles for each room.
    3. How to extract data, etc.
    4. How to respond to local on-site technical issues.
  + On-going support:
    1. As an end-to-end energy solution, SSI maintains data hosting, software updates for the duration SSI works with a client.
    2. Train facility personnel on how to setup email/text alerts for local on-site monitoring of critical points (i.e. water leaks, machinery repairs).
    3. SSI provides on-going technical support for any software or hardware related issue in collaboration with local engineering organizations.