September 9, 2015 Meeting

The September 9, 2015 Waterloo Technical Society (WTS) meeting was called to order by President Gary Dorhout at 7:25 pm.

A total of 37 were in attendance. Treasurer Ken Friend reported a previous balance of $1,044.08. There were receipts of $0.00 interest and $10 in membership dues. Expenses were $15 for the May guest speaker's meal. The ending balance was $1,039.08. Ken reported 11 honorary and 29 paid members for a total of 40 members.

Old Business. A new public address system was purchased by Mr. Tim Schoenfelder and used for the first time at the September meeting.

New Business.

Cedar Valley Makers (CVM) introduced their business to the membership. They are located at the Tech Works in Waterloo. They are a non-profit organization and are currently soliciting equipment, money and in-kind-machining as they begin their enterprise. They have been awarded a $20,000 challenge grant opportunity by the McElroy Trust that matches contributions up to $20,000 received by December 15, 2015. If $20,000 of donations have not been made by that time, CVM loses the match completely. Members were asked to keep this opportunity in mind as they consider their prototype and special fabrication needs. More information is available at http://www.CedarValleyMakers.org.

Phil Kenealy introduced our guest speaker, Mr. Wendell Strong. Wendell is a 30 year Veteran of the Commercial **/** Industrial Lighting Industry and is currently employed as the PoE (Power over Ethernet) Lighting Solutions Manager by Innovative Lighting, a Roland, Iowa based LED fixture manufacturer for nearly 20 years.

His lighting career has included working with both large and small Lighting Distributors in a variety of roles ranging from Lighting Specialist to Vice President of Lighting Sales. These roles included nearly every aspect of lighting including Project Management responsibilities.

Additionally, Wendell has served as the President and Executive Board member of the National Association of Independent Lighting Distributors and helped create and design two Lighting Specialist training programs currently being used by both Manufacturers and Distributors alike.

Wendell has been recognized and seated as an expert witness in matters related to lighting by the Arizona Superior Court System.

History. Innovative Lighting entered the lighting industry in 1993 by producing lighting products for the boating industry. In four short years they began producing lighting using Light Emitting Diodes, or LEDs. As LED lighting evolved, their innovative engineers enhanced the light emitted from these diodes by designing and using proprietary optics to focus the light where it needed to be.

Nearly two decades later, Innovative Lighting continues to provide thousands of domestic and international companies with a diverse line of energy-efficient, dependable LED lighting and custom injection-molded products. Their technically advanced, best-in-class LED lighting solutions are expertly crafted to exact standards and specifications in three leading-edge production facilities in Roland, Ankeny and Albia, Iowa where their quality construction is a source of pride.



Figure 1. GENISYS Lighting System from Innovative Lighting.

GENISYS. Starting at the switch – System power for the GENISYS PoE Lighting System comes from a PoE+ (30W per port) or a UPoE (60W per port) networking switch. An open IEEE infrastructure means that you can use the PoE Switch of your choice.

Adding Intelligence – From the switch, Ethernet cables are run to the Intellidrive. The Intellidrive is a power management device, data recorder, and networking tool that enables GENISYS efficiencies. A 32 bit architecture ensures that the Intellidrive will be ready for the devices of tomorrow.

Maximizing Versatility – Three Ethernet ports line the front of the Intellidrive – White Light, RGB, and Controls. White Light is used for familiar light fixtures which emanate the shades of white we are all used to seeing in traditional settings. RGB manages color changing fixtures which are tunable to any color you desire.

Ready for Anything – The Controls port is used to connect peripheral devices such as switches and sensors. Touch sensitive, fully dimmable wall switches can be daisy-chained with sensors capable of Occupancy, Vacancy, Daylight Harvesting, and Ambient Temperature Sensing. The location for each device is set via software.



Figure 2. Tablet for controlling PoE Lighting

Tablet Control. Choose Your Scale – Control your entire building with a click, enter settings for individual rooms, or get granular by dividing up rooms into Sub-Spaces.

Specificity & Capability – Want 10 dimmers for a single space? Prefer to have blue lights come on in the afternoon and morph into red by the end of the day? Maybe increase efficiency to such a high degree that your fixtures will last 50 years? Extremes are possible with GENISYS.

Usable Data – Analytics and ultra precise usage data provide enormous energy savings potential and cloud based service means you can monitor your facility from anywhere

Remarks. The system operates on 24 volts. Included in the circuitry is a 120 to 24 volt transformer. In 2013 CISCO company became a developmental partner. They were already engaged in Power over Ethernet applications for cameras, Voice over Internet Phones (VOIP), and thermostats.

With the help of special software, circadian lighting can be provided. Circadian lighting changes during the day just as lighting from the sun changes. Eyes and skin are sensitive to these lighting changes. Alzheimer's patients appear to benefit from this lighting change. Other studies have shown that productivity in the office increases 3 to 4 percent with controlled circadian lighting. Not only is the color controllable, but the light spectrum can be changed from 4000°K to 3500°K.

Switches are seen as data ports by the controller. They can be programmed as any port using User Datagram Protocol (UDP), a language that is non-proprietary. Switches are touch controlled to permit dimming by holding the hand on the switch until the correct light level is reached. Multifunctional sensors can tell whether people are present and respond accordingly, sense daylight in the room and dim the lights or respond to control signals for circadian lighting.

Lights are both round, as can lights, or rectangular for panels and linear fixtures. Central Iowa Power Company, CIPCo has rectangular ceiling lights installed. LEDs can last much longer than incandescent lights and can have their lives extended by reducing power without losing light. This makes the system sustainable. As the LED begins to fade the current can be increased programmatically to restore the light intensity. A safety feature is that power can be cut to the node when a voltage drop is sensed. This makes the system safer. By using 24 volts instead of 120 and Ethernet wiring to permit non-electricians to move fixtures when remodeled, the system is also sensible.

Additional information is available at http://www.innovativelight.com.

Next Meeting. The October 14, 2015 meeting will hear Doug Vernier. Doug will be speaking about his 2015 Tesla Model S electric car. Doug will have his Tesla Model S in the parking lot for a first-hand view after the meeting

Meeting Adjourned. President Dorhout accepted a motion for adjournment at 8:55 pm.

Respectfully submitted,

James R. Stevenson