WHAT IS THE UW INTERNET OF THINGS LAB?
The UW Internet of Things (IoT) Lab is a campus hub focused on learning, research and hands-on investigation with a variety of emerging devices and technologies (involving smart devices, pervasive connectivity, virtual interfaces and cloud computing), and their potential applications in consumer, retail, healthcare and industrial contexts. It serves as an exciting multidisciplinary learning and research environment for students, as well as a thought-leadership showcase to experience cutting-edge technologies and use-cases.

WHAT WILL STUDENTS DO?
We are seeking a group of highly motivated undergraduate and graduate students from a diverse set of disciplines (including engineering, computer sciences, business, nursing, consumer science/retailing, statistics, etc.). The students will have the opportunity to work on a variety of mini-projects to explore the potential uses of these technologies, and to innovate and build functional prototypes and exhibits to demonstrate their applications.

BENEFITS TO STUDENTS?
You will gain valuable and marketable hands-on learning experience with leading IoT technologies and applications. You will learn from IoT skills workshops and hands-on tutorials, and through interactions with industry. You will also have the opportunity to create new and innovative applications of these technologies, and earn certificates and win cash prizes at the end of the semester. You may also be able to earn academic elective credits.

IMPORTANT DATES

<table>
<thead>
<tr>
<th>Date and Time</th>
<th>Event</th>
<th>Location</th>
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<tbody>
<tr>
<td>5-7 pm, Wednesday, 9/9</td>
<td>Student Information Session</td>
<td>EH 1800</td>
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<tr>
<td>4-6 pm, Friday, 9/11</td>
<td>Student Planning Session</td>
<td>Mechanical Engineering (ME) 3121</td>
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<tr>
<td>5 pm, Wednesday, 9/16</td>
<td>Deadline: Submit Project Proposal</td>
<td>Send to <a href="mailto:yen@engr.wisc.edu">yen@engr.wisc.edu</a></td>
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<tr>
<td>1-5 pm, Wednesday, 9/23 or 8 am-noon, Thursday, 9/24</td>
<td>Basic Skills Boot Camp</td>
<td>ME 3153</td>
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<tr>
<td>4-5 pm, Wednesday, 9/30</td>
<td>Student Working Session &amp; Pizza Social</td>
<td>ME 3153</td>
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<tr>
<td>4-5 pm, Wednesday, 10/14</td>
<td>Student Working Session &amp; Pizza Social</td>
<td>ME 3153</td>
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<tr>
<td>4-5 pm, Wednesday, 10/12</td>
<td>Mid-Term Internal Open House</td>
<td>ME 3153</td>
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<tr>
<td>4-5 pm, Wednesday, 11/11</td>
<td>Student Working Session &amp; Pizza Social</td>
<td>ME 3153</td>
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<tr>
<td>4-5 pm, Wednesday, 12/2</td>
<td>Student Working Session &amp; Pizza Social</td>
<td>ME 3153</td>
</tr>
<tr>
<td>5 pm, Wednesday, 12/2</td>
<td>Deadline: Submit Project Posters</td>
<td>Send to <a href="mailto:yen@engr.wisc.edu">yen@engr.wisc.edu</a></td>
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<tr>
<td>4-6:30 pm, Wednesday, 12/9</td>
<td>Open House Dry Run</td>
<td>Meet in ME 3153</td>
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<tr>
<td>1-5 pm, Friday, 12/11</td>
<td>Open House Preparation and Judging</td>
<td>ME 3153/Lobby</td>
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<tr>
<td>5-7 pm, Friday, 12/11</td>
<td>UW IoT Lab Open House</td>
<td>ME Lobby</td>
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**Schedule may change. Check iotlab.wisc.edu/events-students.aspx for the most up-to-date schedule.

Lab Contacts:
- Dr. Raj Veeramani, Executive Director, raj@engr.wisc.edu
- Dr. Thomas Yen, Technical Director, yen@engr.wisc.edu
- Alfonso Gutierrez, Research Director, aguirre@wisc.edu
- Sandra Bradley, Research Director, sbradley@wisc.edu

In the UW IoT Lab, you can learn to:
- Create microcontroller base hardware to collect sensor data using:
  - Arduino Yun Internet.
  - Intel Galileo and Edison.
- Implement IoT software to control microcontrollers, communicate wirelessly, send data to other devices and store data in the cloud, using platforms such as:
  - Ayla.
  - PTC/Thingworx.
  - Google Brillo.
  - Intel IoTivity.
  - Windows 10 IoT Core.
- Connect a variety of sensors, actuator, Electronic -ID (i.e., temperature, pressure, switches, relays, solenoids, RFID, NFC) to microcontrollers.
- Use Bluetooth Low Energy beacons to alert users with devices that they are in the vicinity of the beacon.
- Develop apps for smart devices and wearables, such as:
  - Pebble Smart Watch.
  - Apple Watch.
  - Microsoft Fitness Band.
- Employ a variety of user input devices to implement user-friendly and intuitive interfaces to control IoT devices:
  - Leap Motion Controller (hand and finger movement tracker).
  - Microsoft Kinect (Body posture).
- Develop apps for immersive user experiences using virtual and augmented reality devices, including:
  - Oculus Rift
  - Microsoft HoloLens
- Fly and develop custom apps to control flight capabilities of various drones:
  - Storm Hexocopter.
  - AR Parrot.
  - CrazyFlie Nano Quadcopter.
- Retrieve and use vehicle system data to develop apps.
- Use the I2P/Tor open-source protocol for secure, private device-to-device and storage communication.

Register for the UW IoT Lab Planning Session, 9/11: surveymonkey.com/r/UWIoTLab
Download the Project Proposal Form: iotlab.wisc.edu/students/docs/ProjectProposal.docx
1. Tentative Project Title:

2. Problem Statement (brief description of the problem/opportunity to be addressed / significance)

3. What will be the tangible deliverable/outcome from your project? (i.e., what do you hope to show/demonstrate during the Open House at the end of the semester?)

4. Specific device(s), app(s), kit(s), etc. that you plan to use in this project: (If any items need to be purchased, please indicate cost and where to buy, if known).

<table>
<thead>
<tr>
<th>Item (Quantity)</th>
<th>Link to purchase</th>
<th>Cost/unit</th>
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5. What do you plan to do with the items listed in 2 above? (What activities do you plan to do? What questions will you try to answer?)

6. Skill requirements (List the UW IoT Lab skill modules applicable to this project. Add any skills that are not already listed as a skill module.)

7. Team member names, department/area of study, e-mail addresses and main skill brought to the project:

<table>
<thead>
<tr>
<th>First Name</th>
<th>Last Name</th>
<th>Department</th>
<th>e-mail</th>
<th>main skill</th>
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8. Why do you think this project should be chosen?

9. Complete the graph below:

Register for Planning Session on 9/11/15:
surveymonkey.com/r/UWIoTLab