EC 544 Challenge 1

Group 04
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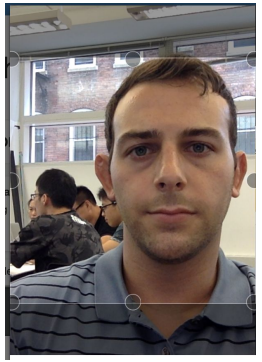
Welch, Austin

Presenter on this challenge, and to date

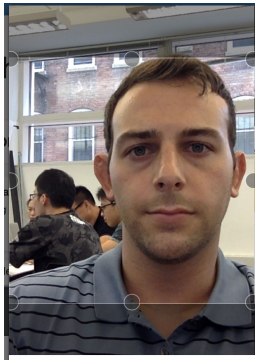


	Kiran Vishal	Jo Ann	Dami	Austin
Challenge 1	Presenter			
Challenge 2		Presenter		
Challenge 3			Presenter	
Challenge 4				Presenter
Challenge 5	Presenter			
Challenge 6		Presenter		
Challenge 7			Presenter	
Challenge 8				Presenter

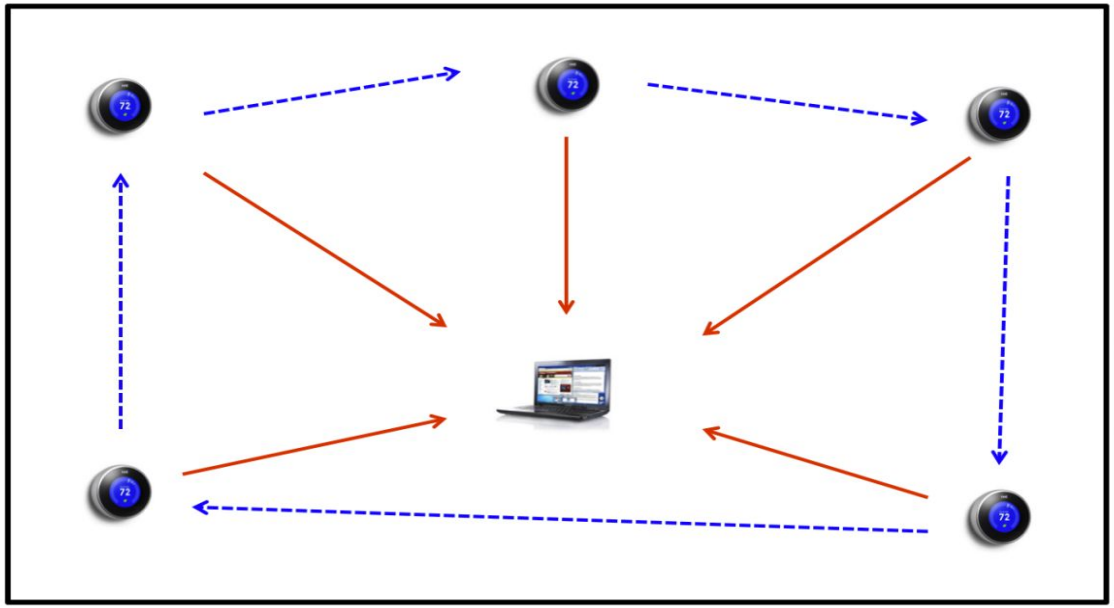
What did each of us do for this challenge?



	Kiran Vishal	Jo-Ann	Dami	Austin
1	I put together the analog circuitry on the shield for the nodes. I calibrated the thermistor to print out close to accurate temperatures. Worked on the bonus feature of adding a button to switch between modes and also an LED to indicate the same.	For this challenge I devised a way to collect the data from the four arduinos by sending an individual unique key with each sensor reading to the node application. I also developed the javascript to parse the incoming data, calculate the average and display the information on a webpage	For this challenge, I created the webpage and devised a way to display the data on the webpage in the designated area. The webpage also interacts with and receives data from the temperature circuits/ Arduino code.	Helped calibrate the sensors and setup the xbee chat.

Building a Nest



In our implementation we used only 4 nodes due to hardware availability.

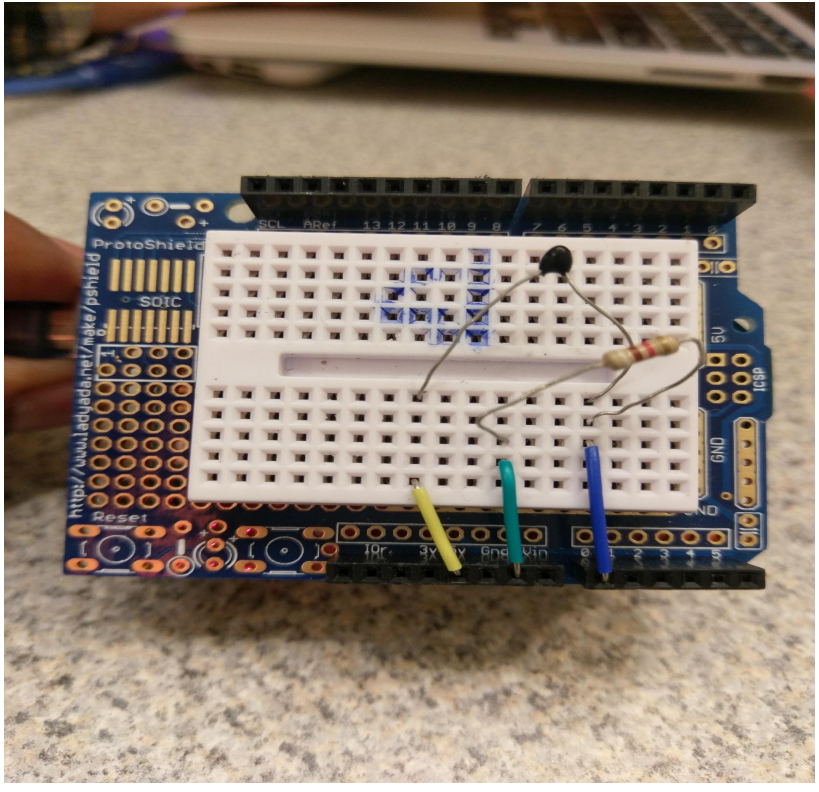
Components and Software used

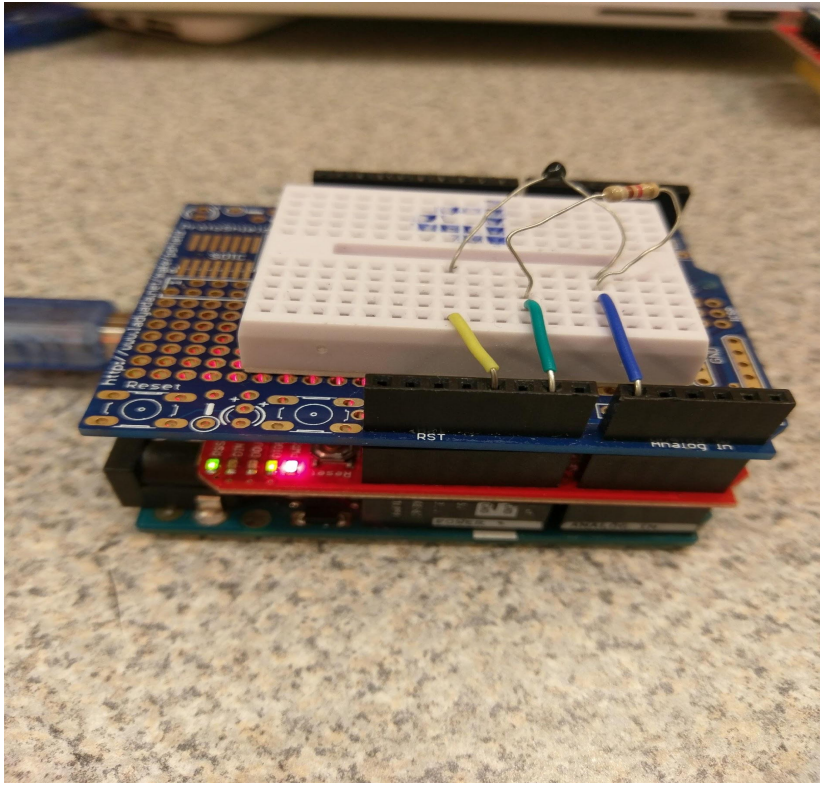
- **Components :**
  - 4x Arduino Uno boards
  - 5x Xbee modules
  - 4x Thermistors and resistors (9.1k)
  - Connecting wires and shields
- **Software :**
  - Arduino IDE
  - Java Script, Node.js Server
  - XCTU
  - HTML

Challenges Encountered and Resolved

- Had difficulty calibrating sensors, but after researching better equations we were able to display more accurate readings in our program
- Ran into trouble storing data in a unique data structure. Created structure, but due to lack of javascript experience was unable to solve bugs and properly implement the structure in our code. If we had more time we would have been able to dynamically create objects and store them in an array. With all temperature data being stored according to its unique key. and then averaged every 2 seconds. This would allow for the program to add 1000s of devices dynamically or account for the lose of sensors.

Photos of Developed System – Individual Node





Photos of Developed System – Hardware Layout