INTERNET OF THINGS CAPSTONE PROJECT: HOTDOG

SEIS 785-01

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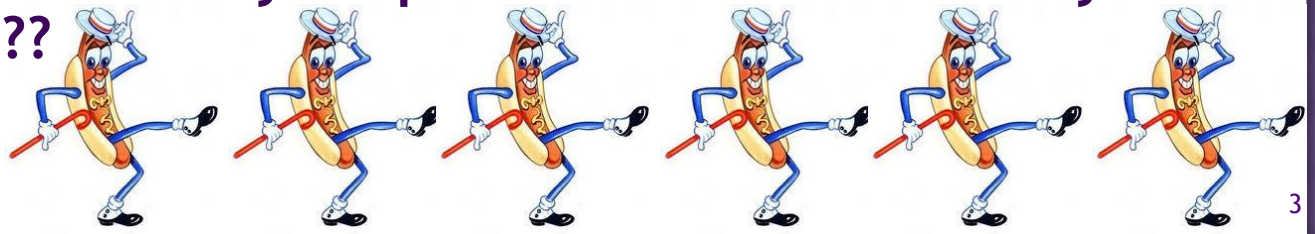
PROJECT HOTDOG REQUIREMENTS

- A wearable (collar based) safety device for pets to warn when the Heat Index starts to approach dangerous levels
- Solicit help from neglectful owners and passers-by when a pet is in a dangerous situation
  - For example: locked in a car
- Fully mobile & independent solution to protect pets while in a car and not at home (e.g. no wifi)
- Waterproof and wearable on a collar but yet still visible enough to indicate when a dangerous situation is present

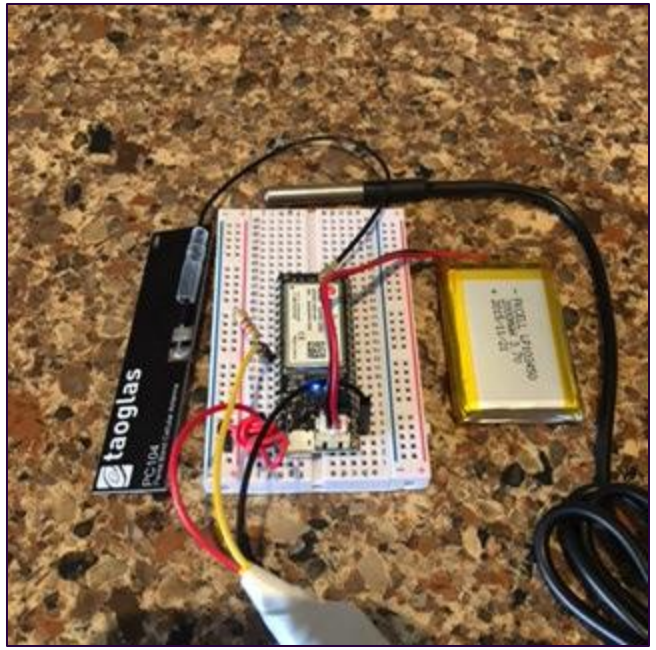
STATISTICS & MARKET POTENTIAL

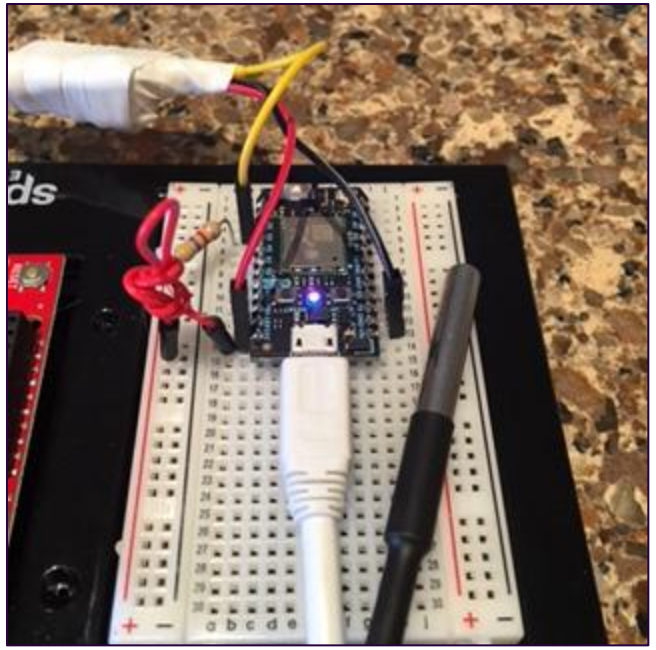
- A dog can succumb to Heat Stroke in under 10 minutes in a vehicle
  - Temperatures (Heat Index) can quickly rise 20 to 30 degrees within a car even with the windows rolled down
- No official statistics are kept of dogs injured or dead because of Heat Stroke
  - News is still littered with stories every year
- Estimated 70 – 80 million dogs owned in the U.S.
- Appx. 37% - 47% of all households have at least one dog
- Pet owners spent $60.28 Billion on products in 2015
  - 32% was spent on Pet Supplies and Services, continues to grow 4% annually
- **How much would you spend to ensure the safety of your pet??**



INGREDIENTS

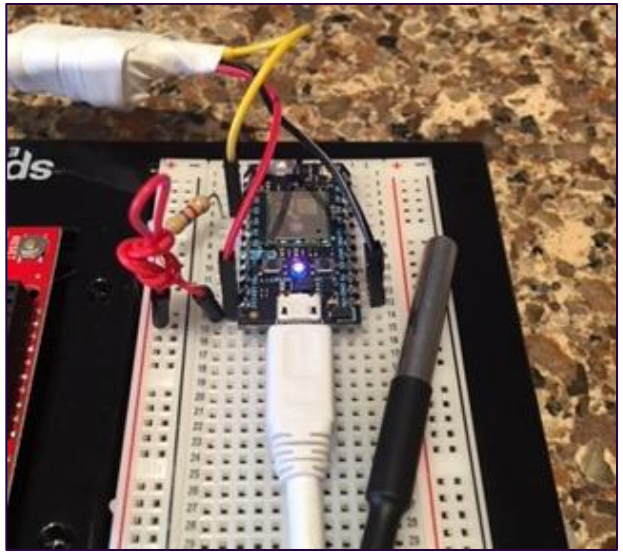
- Particle Electron w/Breadboard
  - Particle SIM Card
  - Cellular Antenna
  - 2000mAh 3.7V LiPo Battery (rechargeable)
- Sensors
  - DS18B20 Waterproof Temperature Sensor
  - 4.7k Resistors
  - Various Jumpers
- Extras - Optional
  - Particle Photon (instead)
  - External RGB LED (e.g. NeoPixel)
  - Piezo Buzzer
  - Humidity Sensor
  - Various Jumpers and Resistors

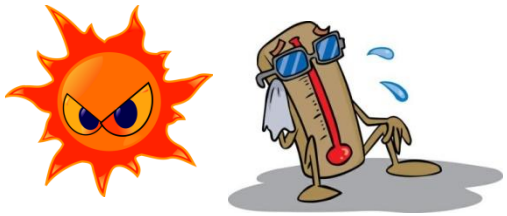


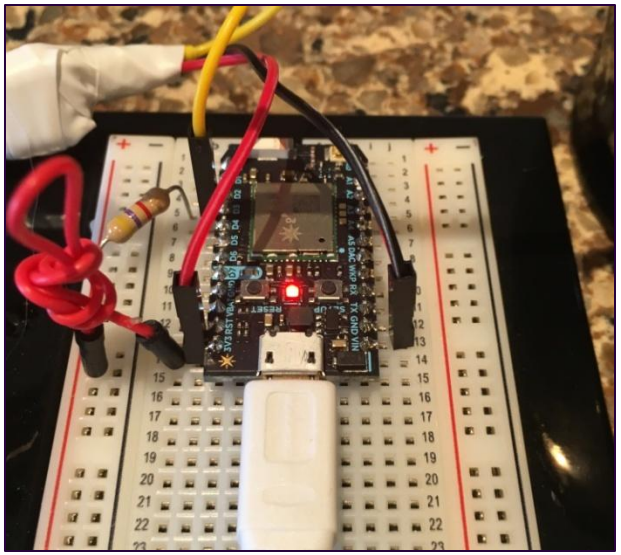


HOW IT WORKS

- Temperature & Humidity sensor data is collected
  - Heat Index is calculated and threat levels are determined
    - Alert conditions are identified
    - External events can also trigger alerts
- Feedback is Generated
  - RGB LED's are set from Heat Index threat levels
    - Sliding color/intensity scale from **Blue** to **Red**
  - Data is published via Webhooks
  - SMS Text messages are sent to owner(s) for Alert conditions
- Activity is governed to minimize battery drawdown

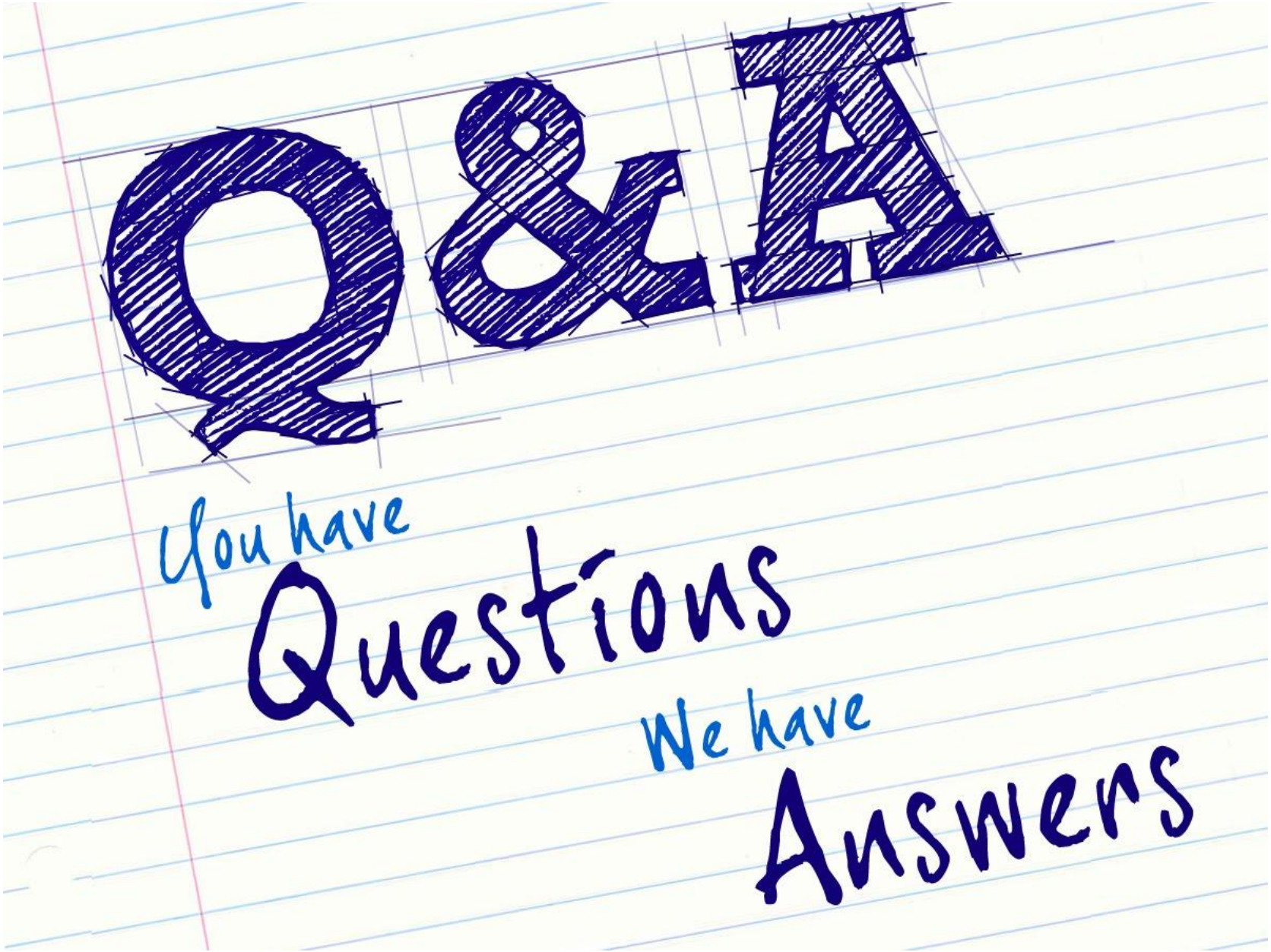






FUTURE IMPROVEMENTS

- Hardware
  - Continue to shrink the form factor & components to make it wearable
  - Develop a waterproof shell to contain the components
  - Develop a recharging port for the battery
- Software
  - Improve algorithm to conserve power & data by controlling battery and publishing intervals
  - Expand the functionality of the cellular interface (geo-location)
  - Tie the data being generated into IBM's BlueMix Suite
  - Refine the external inputs (Weather Data)
- Mobile App
  - Make it beautiful, elegant and clean
- Expand to support "*Chilly Dog*"


Q&A
You have
Questions
We have
Answers