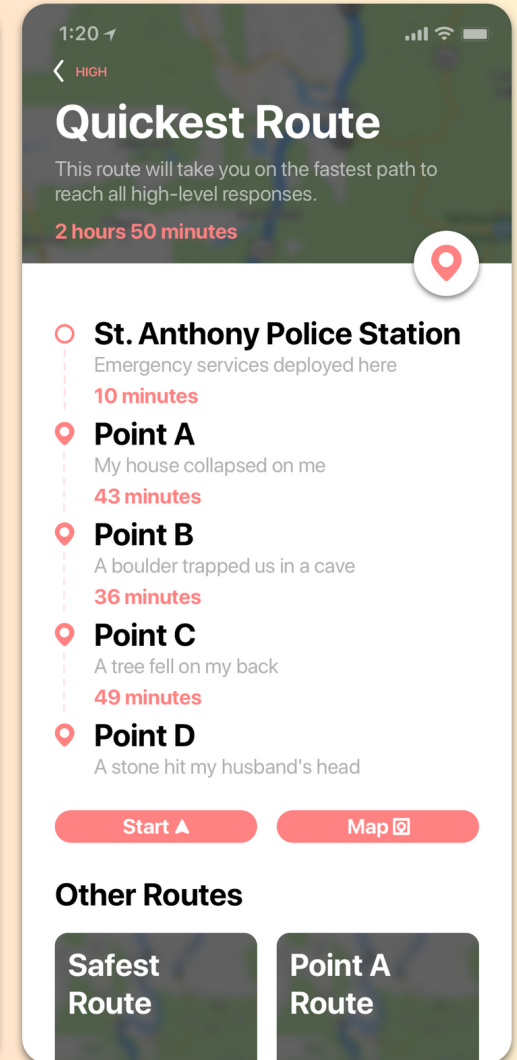
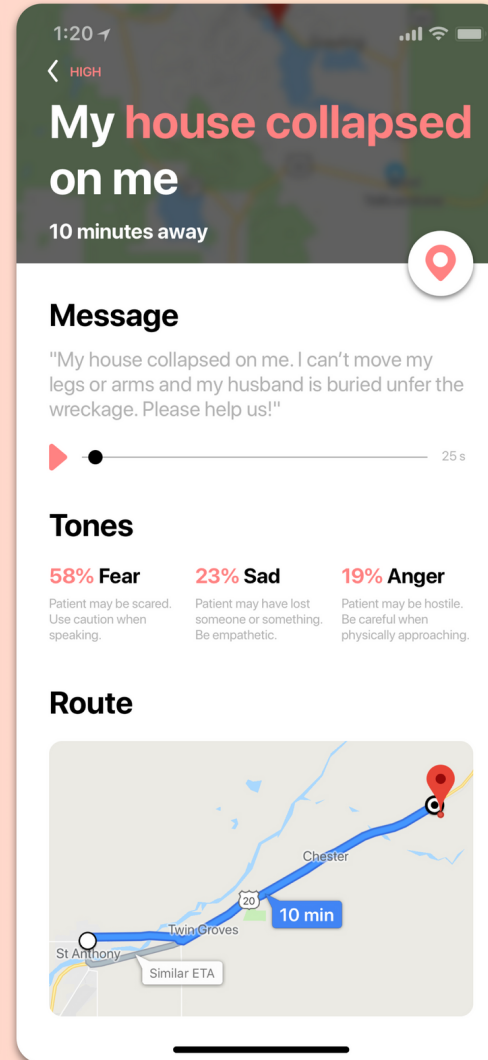
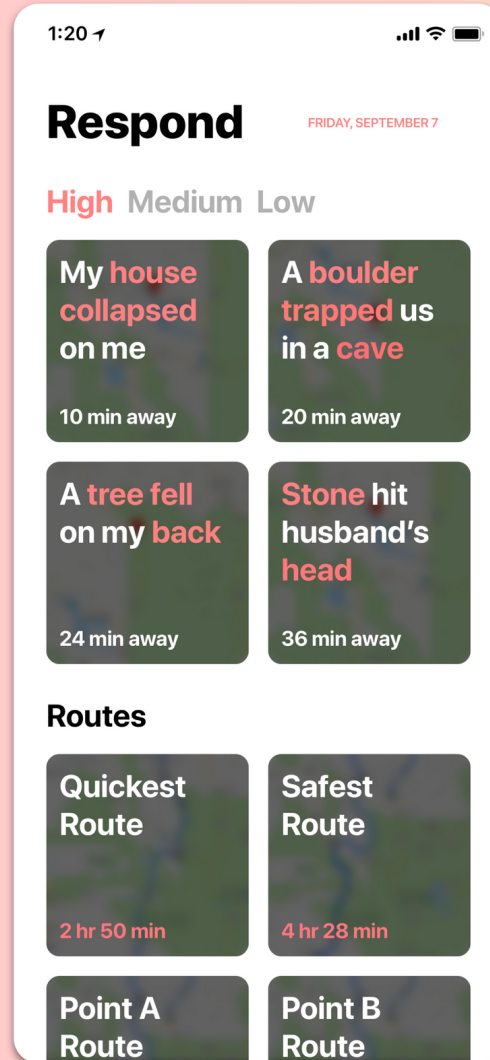


# Respond

An easy way for first responders to prioritize those who need help and save time reaching more people.



# Respond

Saving more lives with every call

Natural disasters  
devastate  
communities.

*Hurricane Harvey*





And more  
recently...



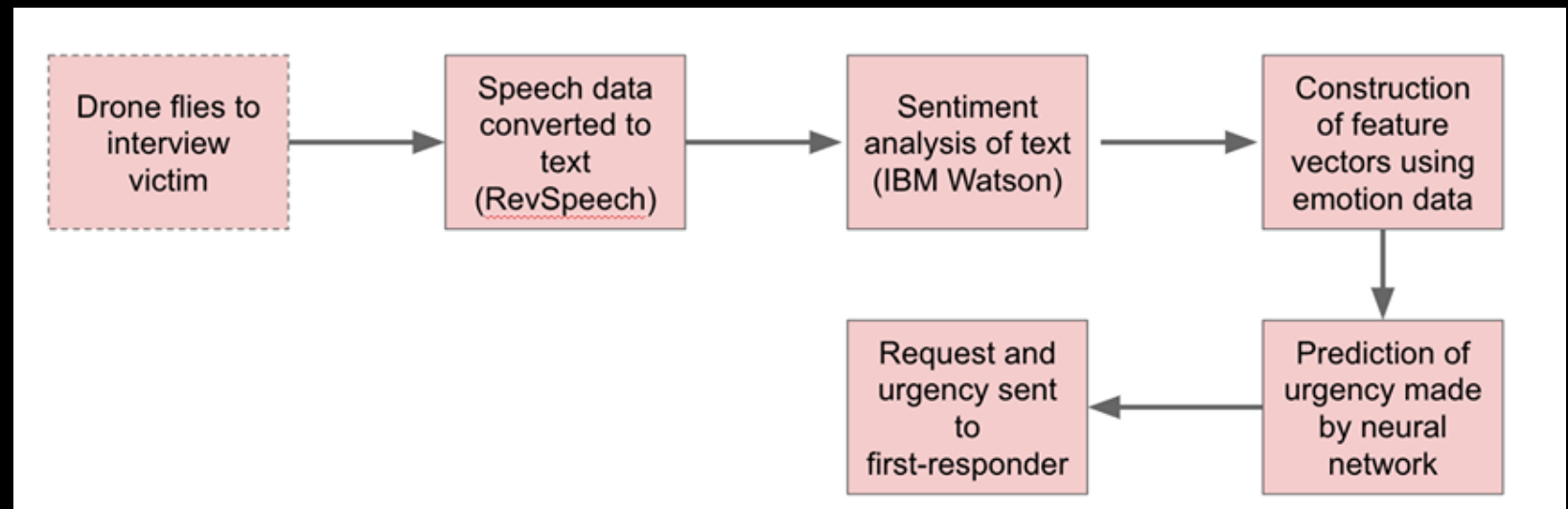
*Hurricane Florence*

# The Problem

1. First responders have a hard time locating people who need help after natural disasters (lack of power, communication, etc.).
2. Prioritizing victims only happens at the hospital, not at the scene.
3. First responders might be unprepared or may not know how to reach people in the most efficient way.

# How does it work?

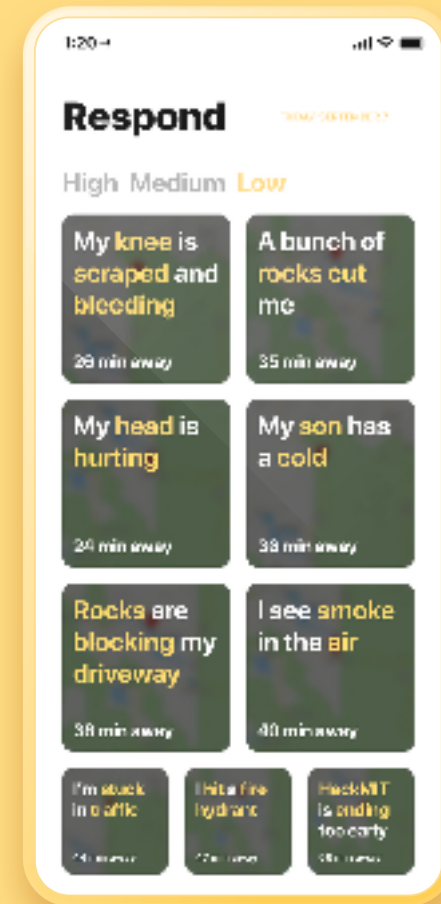
A drone is sent to scour areas during recovery in search for people. Once it picks up human voice, it records a message and immediately runs its machine learning algorithm. It then sends the final level of danger and general location of the victim to a first responder.



Respond Level

# Low

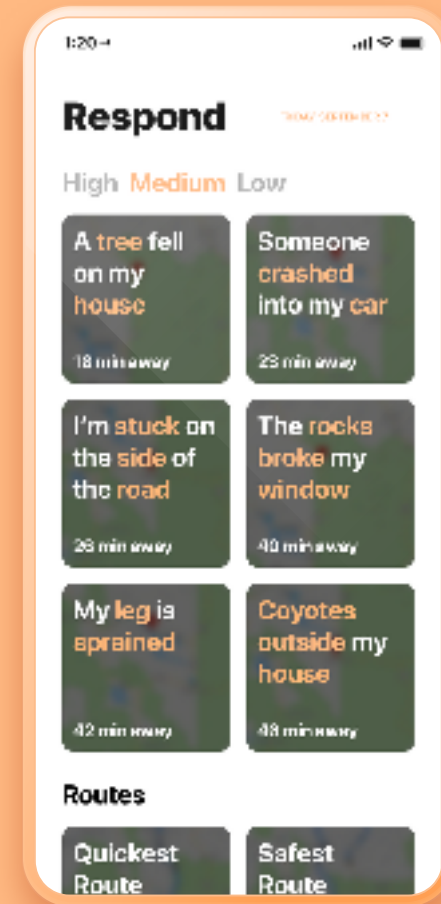
For victims who are able to walk themselves to a hospital or place of refuge.



Respond Level

# Medium

For victims who cannot move themselves and need help getting to a healthcare center.

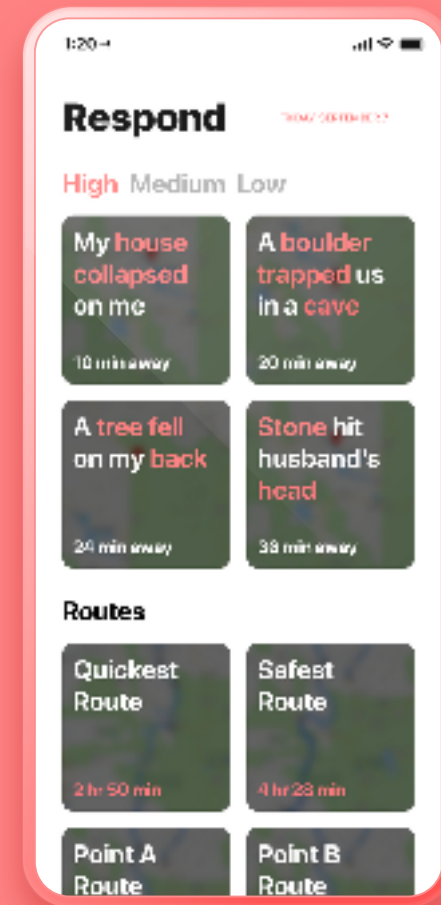




Respond Level

# High

For victims who need immediate assistance and need life-saving.



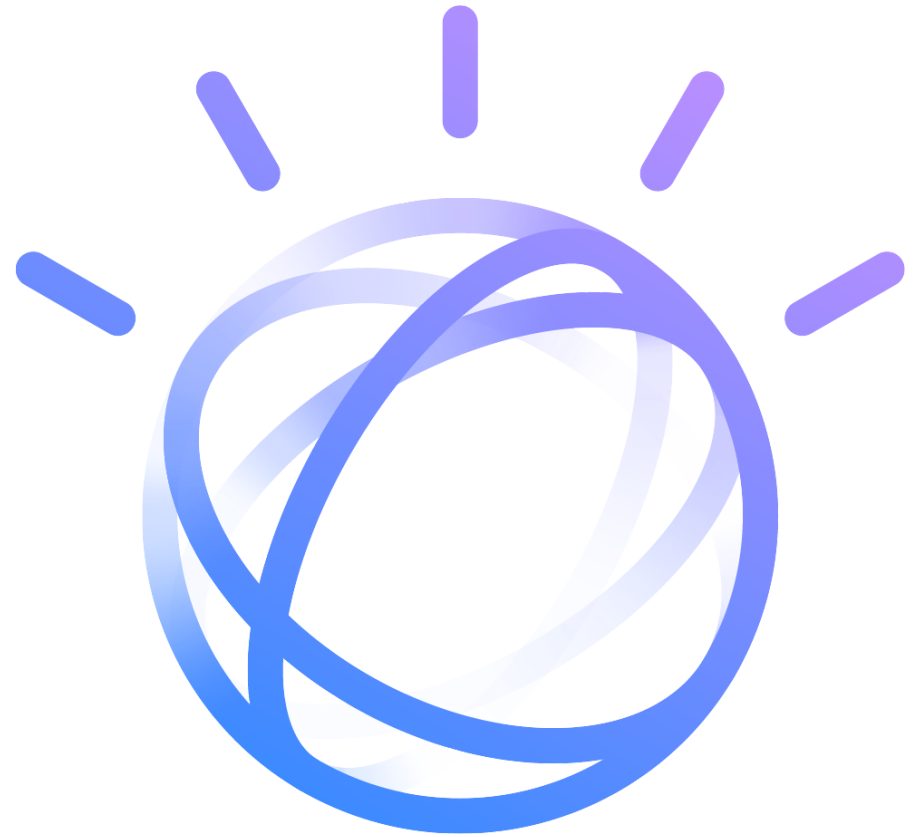
## RevSpeech

- Accurate Speech-to-Text API
- Necessary for capturing a **distressed** victim's information
- Runs immediately after drone captures speech information
- Can run in parallel with sentiment analysis



## IBM Watson Natural Language Understanding

- Identifies critical keywords in sentences.
  - Condenses sentence
- Used to deconstruct the emotions of each keyword.
  - Sadness, fear, anger, disgust, and joy.
- Recognizes proper nouns/entities
  - Condenses necessary information for a first-responder (e.g. name)



# Neural Network

- Training examples created by hand
  - Given more time, dataset should be improved.
- Deep neural network with 1 hidden layer is trained on training data
- Neural network can predict urgency levels



**Demo**

# Future Improvements

- Expansion and publication of data set used to train neural network
- Implementation of drone for application
- Heuristics for path searching in different conditions using Google Maps API
- Scalability in cooperation with first responder departments (i.e. health codes)

