The Center for Cyber Defenders

Expanding computer security knowledge

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Characterizing BLE for Discrete Event Simulation

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What is BLE?:

Bluetooth Low Energy, or BLE, is a low energy, short range wireless technology standard which uses radio frequencies to communicate between devices.

What is Our Project?:

Our project, is an attempt to design an effective P2P network that uses BLE to send messages long distances in emergency situations where the infrastructure for more conventional methods has been disabled or is unavailable.

Channel Characterization:

Our primary contribution to this project is to characterize the BLE channels. The information we gather for this will be used to create an accurate simulation model for the project.

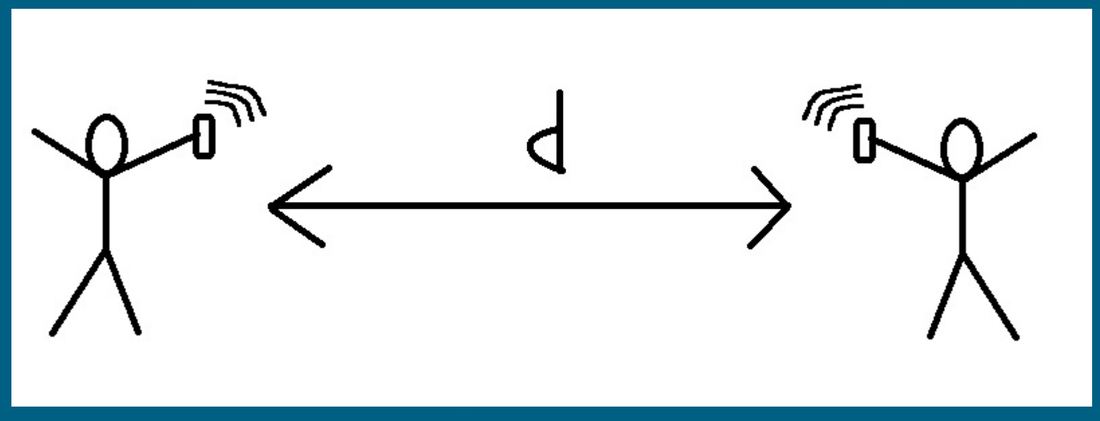
Impact and Benefits:

If our team's protocol is successful, it could become a powerful tool for those in emergency situations.

What We're Gathering:

In order to accurately model the network the simulation team needs the following information:

- **Transmission latency for varying distances, interference environments, and file sizes**
- **Packet drop probabilities for varying distances and file sizes**



Data Gathering Procedure:

To gather this information we used an android application written last summer to record latencies and drop rates in different locations. The procedure is as follows

1. **Connect two phones via BLE**
2. **Start logs**
3. **Log the distance between phones**
4. **Begin transmission**
5. **Repeat for different distances and file sizes**
6. **Use a python script to analyze the logs**

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