What is the FIZ?
The FIZ, Frank Innovation Zone, is a series of rooms in the basement of Dana Hall that contain high end machinery, staff who can operate said machinery as well as a place to work. The main idea is to create a place for students to be able to create their ideas with machines in the industry.

The Product?
Create an system to aggregate all FIZ sensors as well as additional sensors and perform data analytics on the combined data. Things like head count and motion per hour. Make all this available as live as possible as well as available for bulk download by future researchers.

Sensors:
- Motion
- Light
- Door
- Temperature
- Wi-Fi Device

Tools used:
- RabbitMQ
- InfluxDB
- Find-lf
- Grafana
- Nginx
- Let’s Encrypt
- Docker

PiFi: We installed Raspberry Pis throughout the FIZ that scan and detect unique MAC addresses of phones. This gives us a device count. The Pis triangulate, to find which room the signal is coming from. Afterwhich we send that information through Bunny.

Bunny: Pre-existing RabbitMQ server that controlled the flow of all the sensor data from the FIZ.

RabbitMQ Archiver: This is one of the few pieces of custom code. The events coming from Bunny are in a specific format that gets automatically formatted into a form that InfluxDB will accept. Analytics are done on the events by the composite event generator (Like Motion time on/off amounts) and also pushed to InfluxDB.

Future Work
- Better triangulation for Raspberry Pi’s
- More detailed graphs and additional analytics
- Email Alerting

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