# **Pipe Monitoring for Building Owners**

**PiPeWan (Previously FiReWan)**

**Reasoning**

Earlier this year in the John Bardo Center there was a pipe on the third level that froze and started leaking water all over the place. Since it was the weekend not many people were in the building and the leak quickly got out of control. Luckily someone was there to notice the leak into the Robotics and Automation lab. If no one had been working that particular weekend, the busted pipe would have caused even greater damage.

Often times building owners are not aware of when the conditions of the water flowing in their pipes are changing. Decreased flow rate, pressure drops, temperature fluctuations, and leaks are all common problems with pipes. When one of these conditions fails to hold, the repercussions can be severe. You can end up paying a lot more money due to a leak in your system, or in a more critical case, the pipe may freeze and end up causing severe damage to the whole building.

**Goal**

Our goal is to create a computer app to monitor the temperature and pressure of pipes in various positions around a building. The app will notify operators when a pipe reaches a dangerously low temperature and is at risk of freezing through email. A pressure drop will send the highest priority notification requiring immediate action. Each pipe can have a normal and warning temperature setpoint which the operator can edit depending on the contents of the particular pipe. This is to ensure pipes which can safely run below the freezing point of water do not trigger false positive notifications. Finally, the app will contain a map of the sensor positions and maintenance entrances so that operators can quickly locate faulty pipes.