



# Laundry Now

Students: Frank Monforte, Ryan Russell  
Advisor: Farid Farahmand



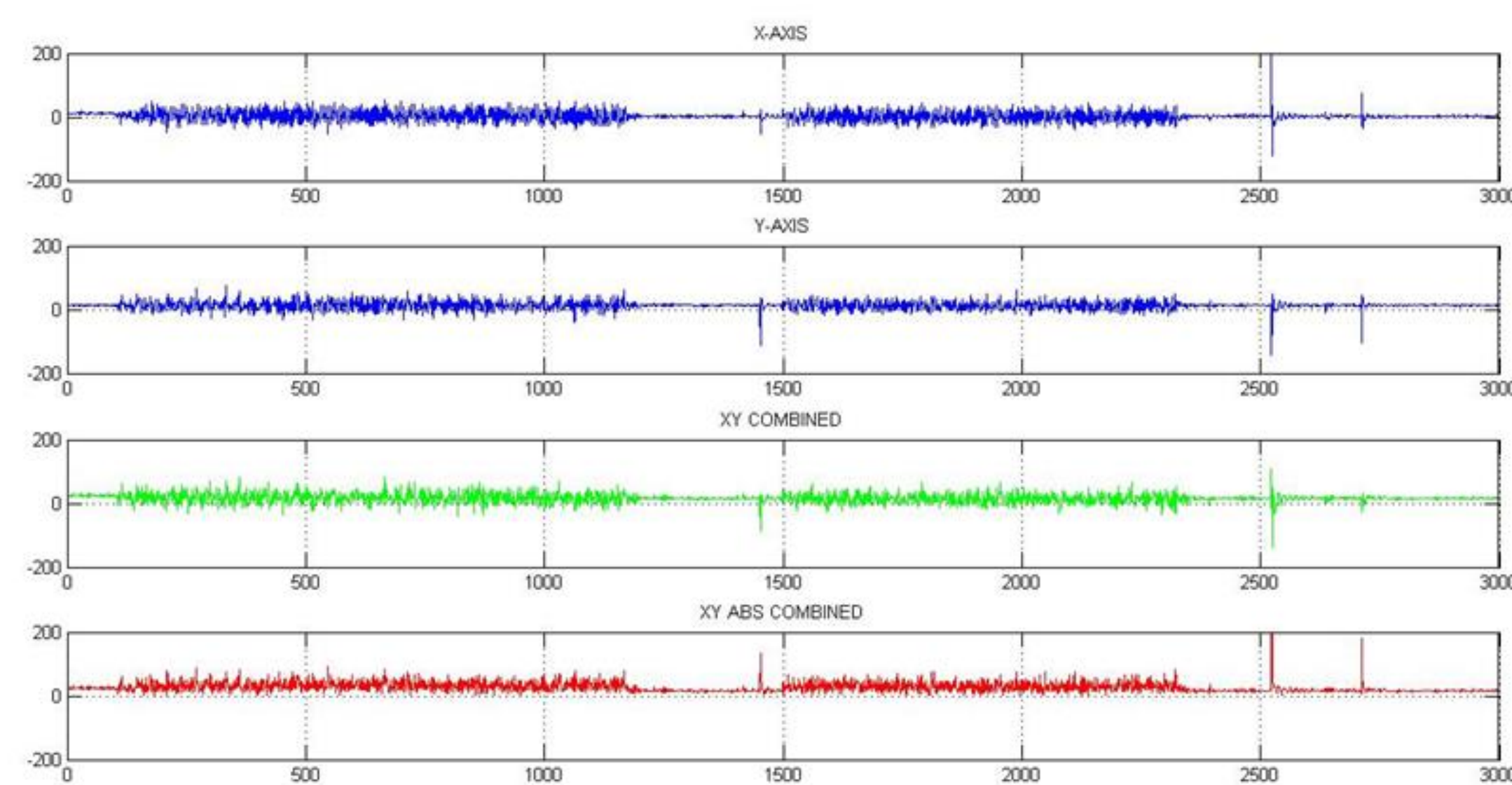
## Abstract

Laundry Now is a system that is intended to make the process of doing laundry more efficient. It is designed to be used in apartment complexes or dormitory laundry facilities, and it will allow residents to easily check if washers and dryers are available or in use. This system will also report the number of cycles each machine has completed, allowing property management to see which machines are being used and how much. By keeping track of the number of cycles a machine has been used, it can help facility management determine when repairs or preventative maintenance may be needed.

## Project Goal

- Simple and Reliable for Residents to use
- Expandable Based on the Number of Machines
- Non-Invasive Design
- Inexpensive to Purchase and Install
- Allow Property Management to Track Machine Use

## Proof of Concept



This Graph shows that it is possible to detect the movement on laundry machines using accelerometers.

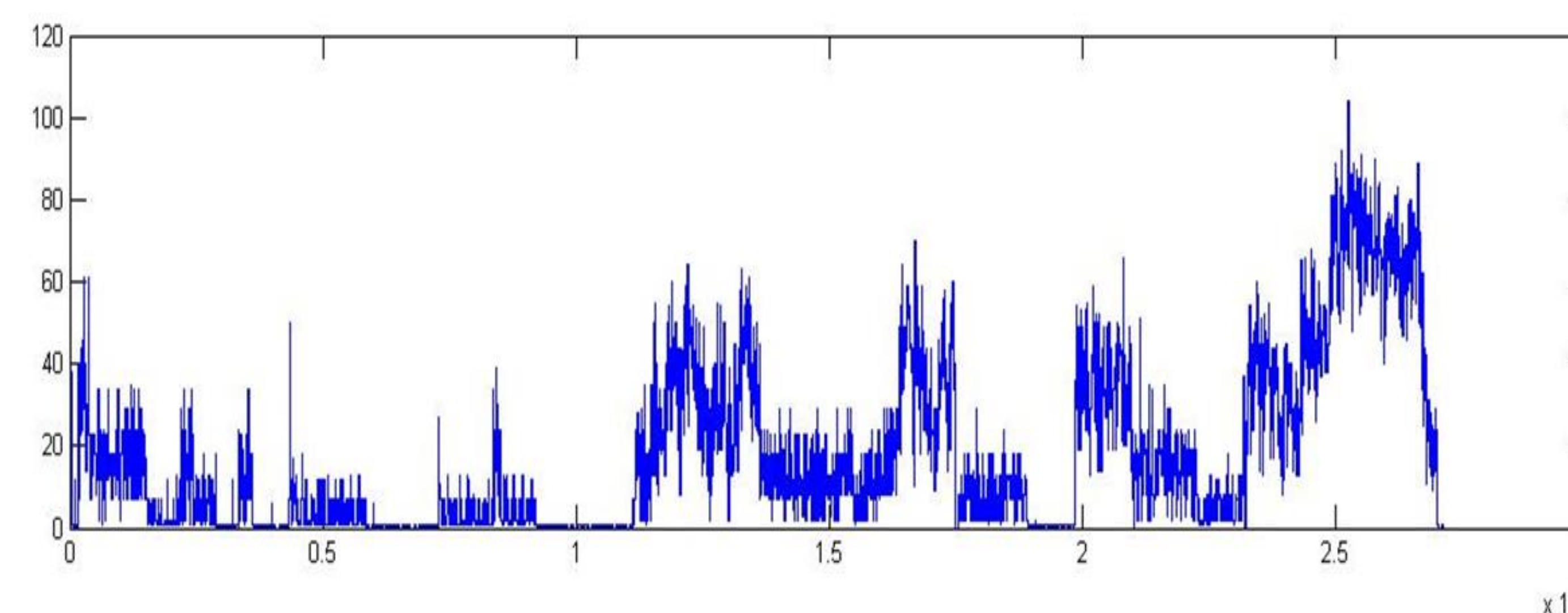
## Design Approach

Creating a system that will handle up to 32 units requires three separate components: a sever, controller nodes and sensor nodes.

- Sensor Node: placed on the back of the machines, contains an accelerometer to gather data.
- Controller Node: communicates with the sensor nodes to collect current usage data, determines the current operating state of the machine.
- Sever: communicates with the controller node, stores the usage data, produces dynamic website based on the amount of sensor node and controller nodes.
- Sensor Node to Controller Node: communicates via a serial connect.
- Controller Node to Sever: communicates via a parallel connect (master/slave).



## Data Gathering

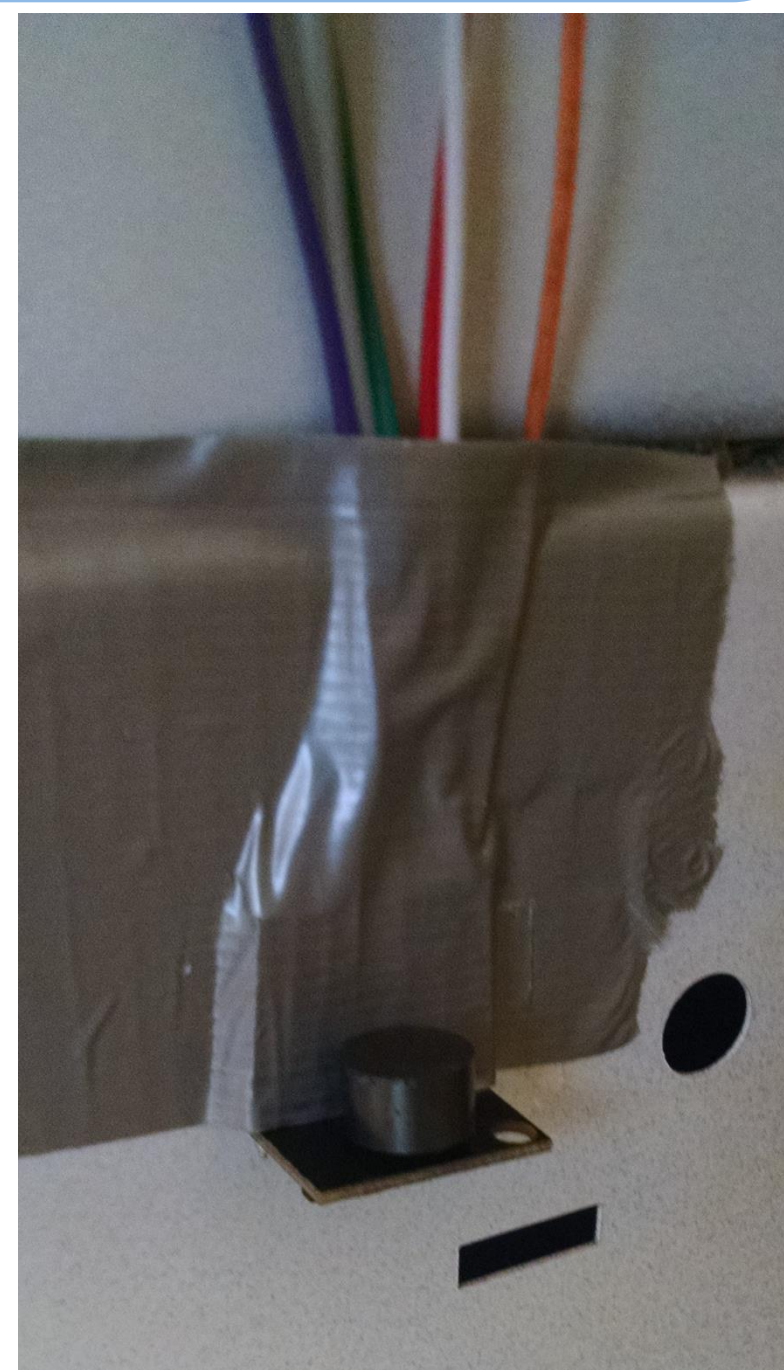


This shows the movement of a washing machine during a 40 minute wash cycle. Unlike the washing machine movement a dryer's movement is more constant, which makes it easier to determine the state of operation.

## Testing



- Best mounting location for sensor
- Communication over distance
- Best operating threshold
- False positives
- Power outages
- Wi-Fi distance



## Implementation

When implemented the system will have a sensor node placed on every washer or dryer in a laundry room. Once this is done, the sensor nodes will be connected to the controller nodes and the controller nodes will be connected to the server node. The sever node also needs to be connected to Wi-Fi in order for users to view the information on their mobile devices or computers.

## User Interface

Laundry Now

Laundry Room Monitoring System			
Row A	Machine Number	Availability	
<div></div>	Machine #1	Finished	
Row B	Machine Number	Availability	
<div></div>	Machine #1	Just Finished	
Machine Usage Data			
Number of Cycles			
Machine	Within Last 24 Hours	Within Last Week	Within Last Month
Row A - Machine #1	1	12	30
Row B - Machine #2	1	19	26

This shows the website layout, and how it will look when Laundry Now is installed and operational at a laundry facility.