

Fall Collection

A Progress Report



Overview of Presentation



Project Overview

- Considering the Problem(s)
- Client Perspective



Product Unveil & Unveil

- System Overview
- Prototype I
- Prototype II
- Prototype III



Future Outlooks

- Business Canvas
- Future Technical Development

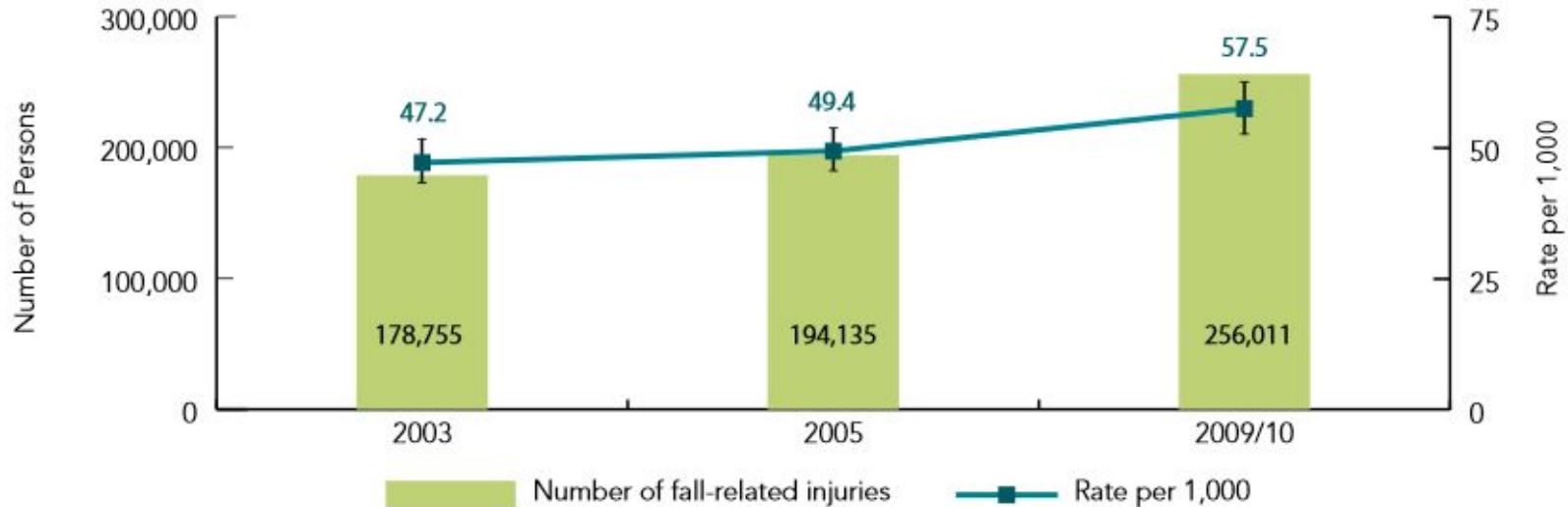


Project Overview



The Problem with Falling

Figure 1: Estimated cases and rates (per 1,000) of injuries resulting from a fall, age 65+, Canada, 2003, 2005, 2009/2010 (95% CIs shown)¹⁵⁹



From the Point of View of the Client

“Preventing falls is actually the end goal, but detecting them is a good start!”

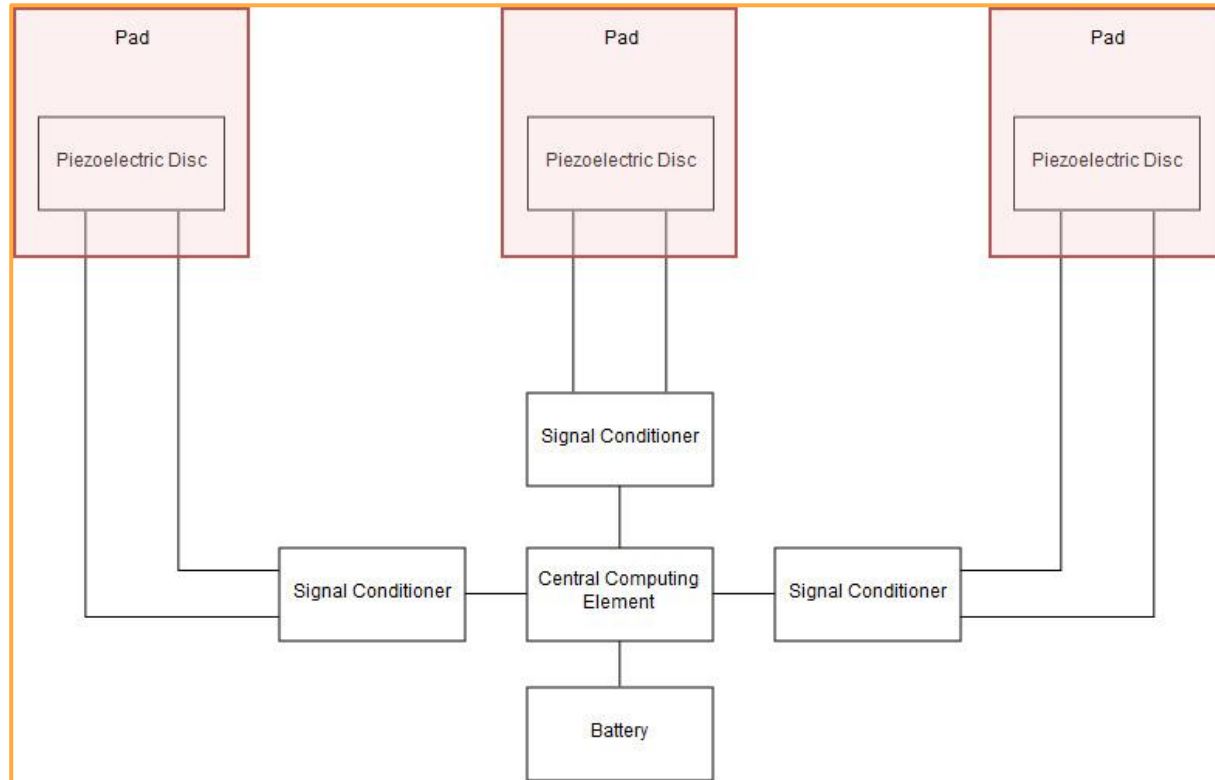
- The system integrates with the patient or caregiver without disrupting routine/typical activities
- The system works with surrounding medical and hospital systems without modifying their behaviour
- The system detects falls such as slips, tumbles, buckles and rolls with a high level of accuracy and efficacy



Prototype Unveils



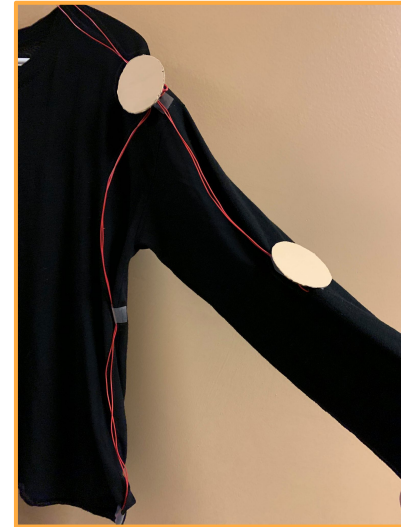
System Diagram



Prototype I - Non Functional

Purpose: to gain marginal amounts of intuition of wire management and comfort

Status: COMPLETED

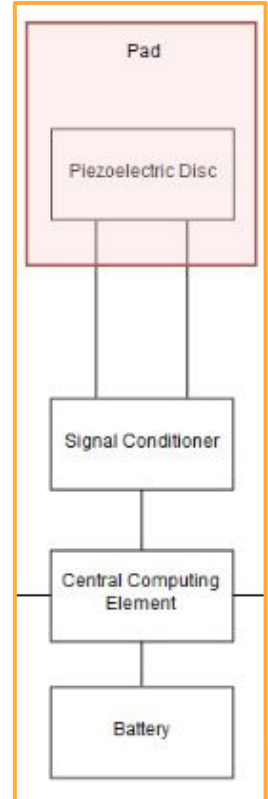


Prototype II - “Flat Product”

Purpose: To demonstrate the functionality of the sensor pad and integration to central computation element

Status: Ready for Component Ordering

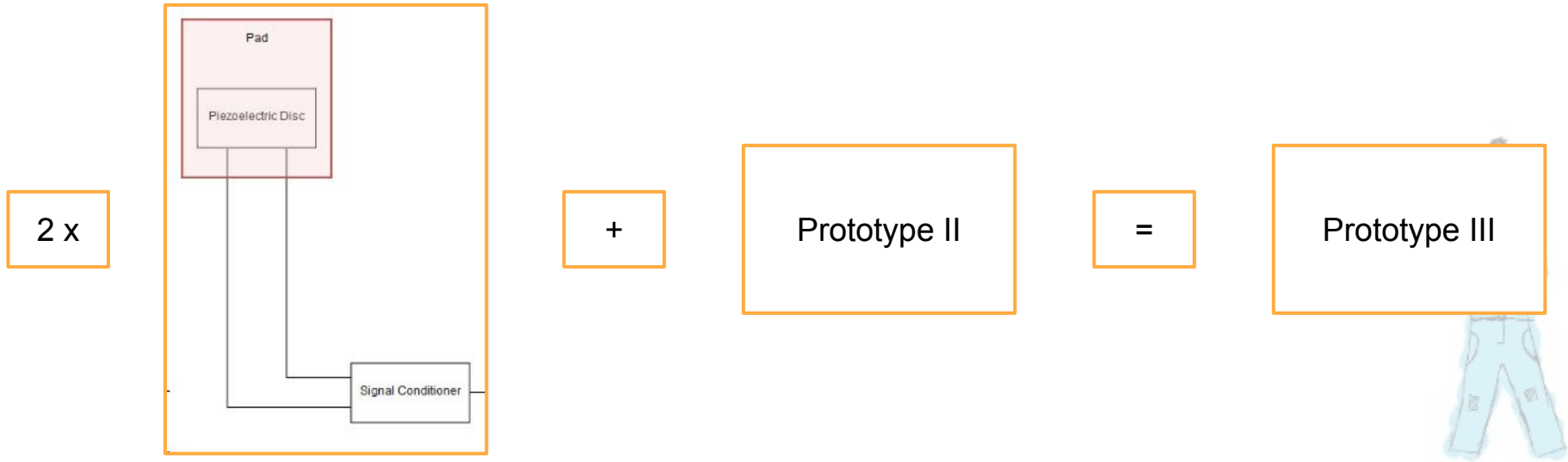
This prototype will satisfy the client’s major requirements and expectations. Achieving this level of functionality will enable the team to refine the implemented signal conditioning circuitry and software to a fairly high sensitivity to falls.



Prototype III - “Handover Prototype”

Purpose: Extending the functionality of Prototype II to a network of sensors and adding the ideas of fashion

Status: Waiting for Completion of Prototype II



Future Outlook



Business Canvas Excerpt(s)

- The value of a theoretical business surrounding the mentioned product comes from:
 - The accuracy of fall detection
 - Simple and effective integration into existing systems
 - Ideas surrounding fashion, comfort and beauty

- Key Customer Segments
 - Governments
 - Nursing homes
 - Hospitals
 - Long-term care facilities
 - Personal Use



Product as a Technical Development Platform

- The atomic component of the product is the so-called sensor pad
- A network of these pads connected to a centralized computing element is likely achievable for the final prototypical stage of this project
 - Even though the client only expects the implementation of the sensor pad
- The initially provided software will be a simple fall detection algorithm. In the future this can be expanded to more exciting implementations via software
 - Stochastic Classifiers
 - Predictive Memory
 - Proactive Model Horizon Method
 - etc...



Parting Remarks

- Falling may seem harmless to many people but as a body ages, this notion changes for potentially detrimental effects
- The product that we will deliver will have two major goals
 - To provide a simple mechanism of fall detection that can be implemented quickly
 - To provide a platform for the integration of more clever algorithms in the future
- The functionality of the product is wrapped around the idea of fashion

