

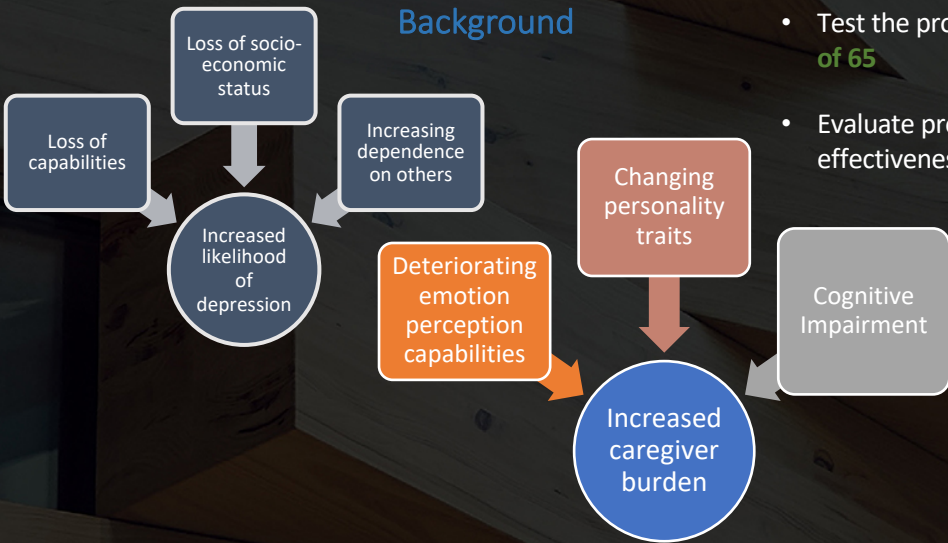
### Introduction

The global population aged 60 and over is expected to double by 2050, when it is projected to reach nearly 2.1 billion.

Almost 5x larger than in 1980 when there were 382 million older persons worldwide.

Detect depressive tendency in older users via minimally obtrusive smartwatches

### Background



Plenty of studies on ER, not enough with old-aged participants

## Autonomous Monitoring for Older Persons

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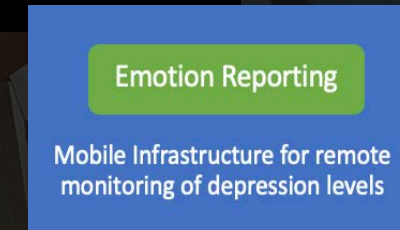
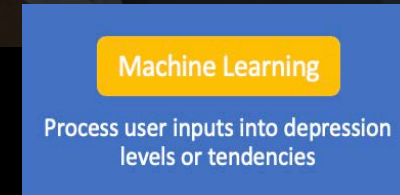


### Objectives

- Train a classifier to process physiological inputs into depressive tendency of the user
- Test the prototype on **users over the age of 65**
- Evaluate prototype feasibility and effectiveness



### Conceptual Framework



### Methodology

- The user wears the Fitbit for 4 continuous weeks
- The Fitbit collects activity and sleep data
  - Gait
  - Sleep Activity
  - Heart rate/activity
- Users fill:
  - Self-reported mood scale daily
  - Geriatric Depression Scale (GDS) weekly



### Future Work

- Train classifier using smartwatch data
  - User Physiology → Depressive Tendency Level
- Validate classifier performance
- Prototype an autonomous emotion recognition (ER) based monitoring system for older persons
  - Reduce caregiver burden
  - Reduce caregiver dependence

