shovelSmart

Nicholas Giza, Lindsey Paradise, Kayla Vallecillo
Advisor: Angela Taricco

Apps for Good

Background

- Shoveling heavy loads of snow increases **risk of physical injury and heart attacks.**
- Climate change contributes to **dangerous storms** and **heavier, wetter snow.**

Target Audience

shovelSmart aims to support **anyone who finds shoveling snow difficult or time consuming**. The app especially benefits the **elderly** and **homeowners**.

App Architecture

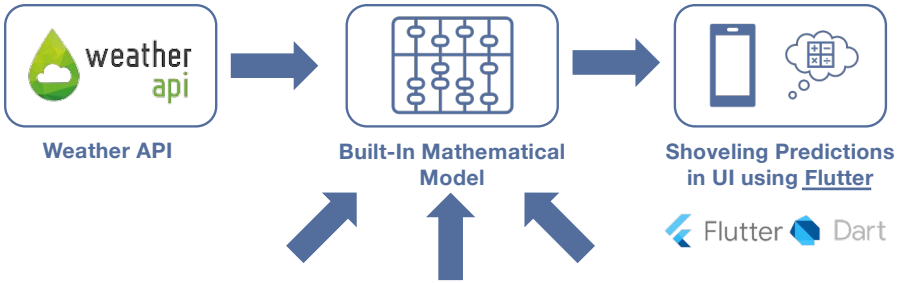
What is shovelSmart?

shovelSmart is a mobile application that allows its users to **shovel snowfall faster and smarter.**

Features

- Snow weight **prediction**
  - How heavy is the snowfall?
- Shovel time **estimation**
  - How long will it take to shovel?
- Shovel time/effort **optimization**
  - When should I start shoveling?

System Architecture & Models



Weather API

Built-In Mathematical Model

Shoveling Predictions in UI using Flutter

Flutter Dart

Past

- Temperature, weather condition, snow/rain history.
- Past weather data is **used to determine when & how snow fell.**

Present

- Temperature, weather condition, current precipitation data.
- Current weather data is used to **determine if conditions are safe to begin shoveling.**

Future

- Temperature, weather condition, future snow/rain prediction
- Future weather data is **used to determine how snow will fall going forward.**

Competitors

Shovler, Inc.

- Aims to **connect shovelers** with app users who are **seeking local shoveling services.**
- High-quality dual-UI with in-app purchasing features, rating systems, and order records.
- **Poses risks to homeowners** through **location sharing** and **failure to receive service**.

Quikplow

- Connects shovelers with users who need shoveling services.
- Sleek, profit-based, easy-to-use interface
- **Knowledge gap:** homeowners/shovelers are unable to determine **how they should best approach** the **unpredictable and unforgiving weather circumstances**.

Future Extensions

Winter Testing

- Test in real-world environments.
- Refine the model based upon testing data.

Incorporate ML

- Incorporate Machine Learning (ML) models
- Adaptable predictions for shoveling time & optimization

Pre-Scheduled Pulls

- Use Cron system job-scheduler to pre-pull weather data
- Notifies users of timing and optimization