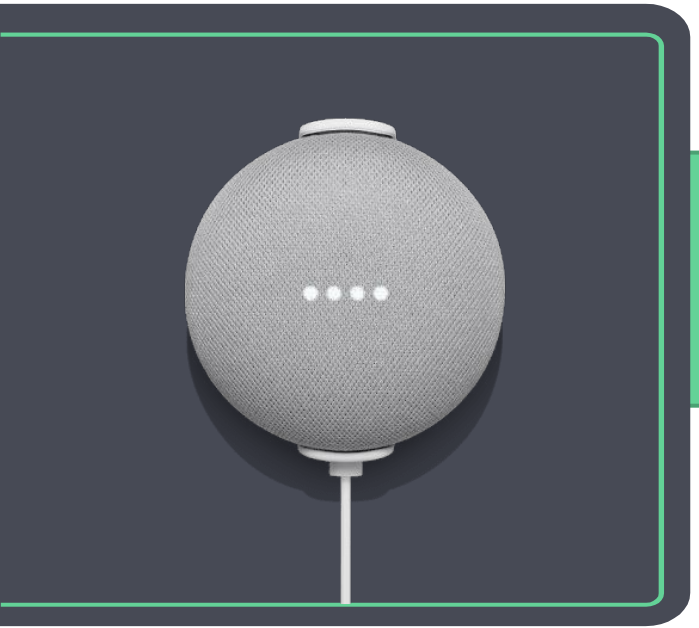

Super Symptom System

A Design Solution To Help Ms. Liu

Team 10
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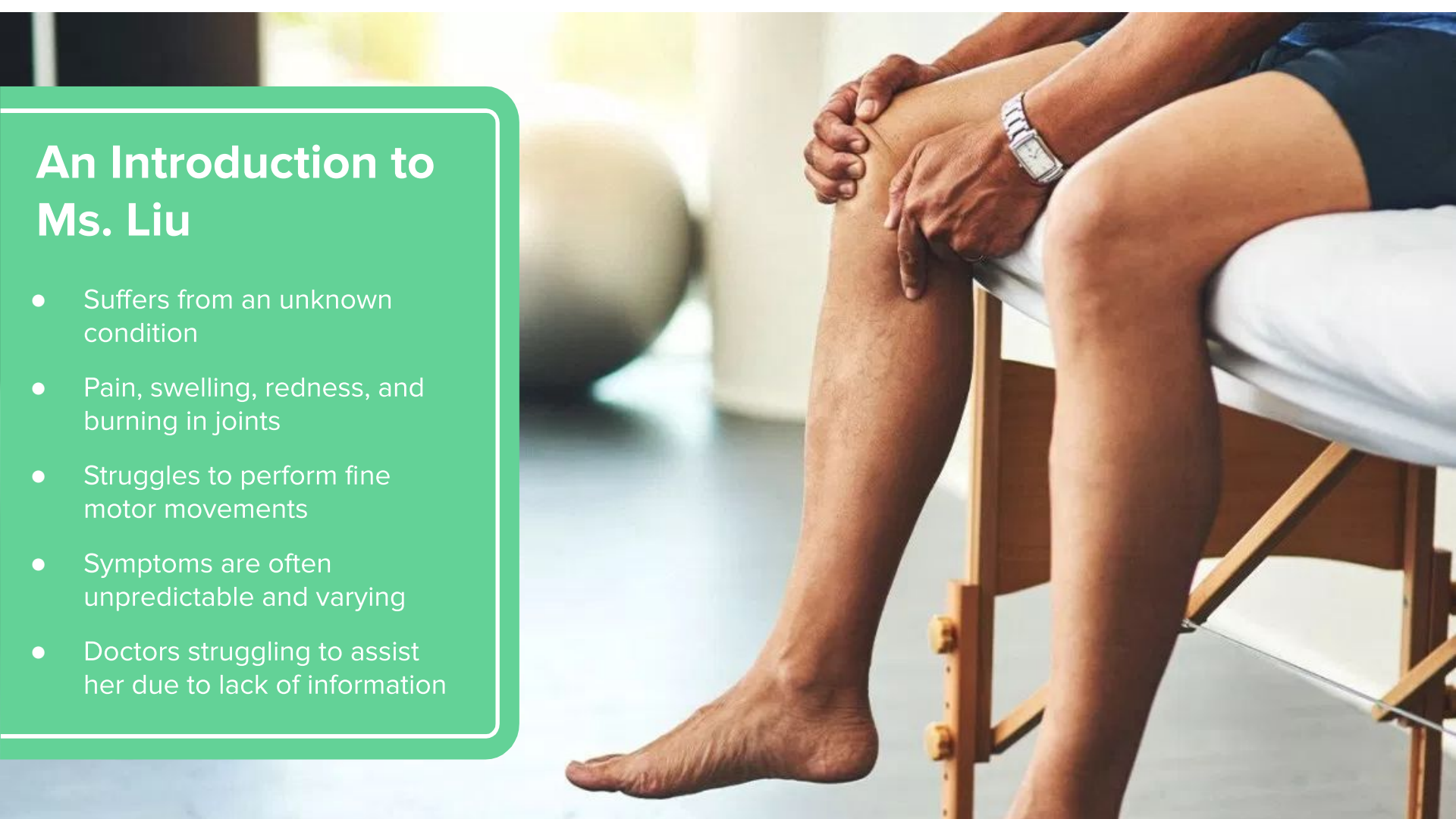
An Introduction to Ms. Liu

- Suffers from an unknown condition
- Pain, swelling, redness, and burning in joints
- Struggles to perform fine motor movements
- Symptoms are often unpredictable and varying
- Doctors struggling to assist her due to lack of information



Ms. Liu needs a design solution that will make it easier and indelible to record her symptoms in order for her physicians to better understand and assist her with the condition(s) she faces.

Customer Requirements

Objectives
- Intuitive
- Durable
- Ergonomic

Constraints
- Inexpensive
- Pain-free
- Does not require fine motor movements

Functions
- Records symptom data
- Displays relevant data
- Provides reminders

Our Proposed Design Solution

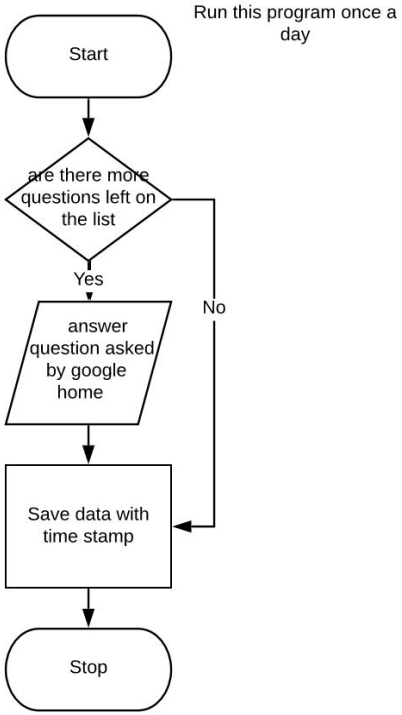
Initially...

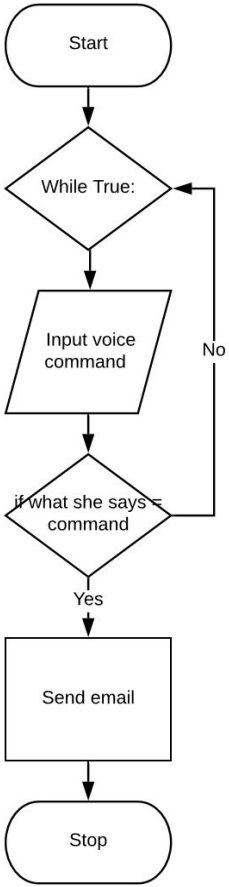
- A program designed for either Amazon Alexa or Google Home
- Records symptom data via daily voice interactions with Ms. Liu
- Saves and sends recorded data to Ms. Liu's doctors

Justifying Our Decision

We chose this solution because of what it would do for our client, her doctors, and her treatment...

- Minimal physical exertion on Ms. Liu via voice-based interactions
- Provides a quick method of useful symptom data collection everyday
- Provides a friendly reminder for Ms. Liu to input data daily
- Assists her doctors in better understanding and treating the conditions she faces





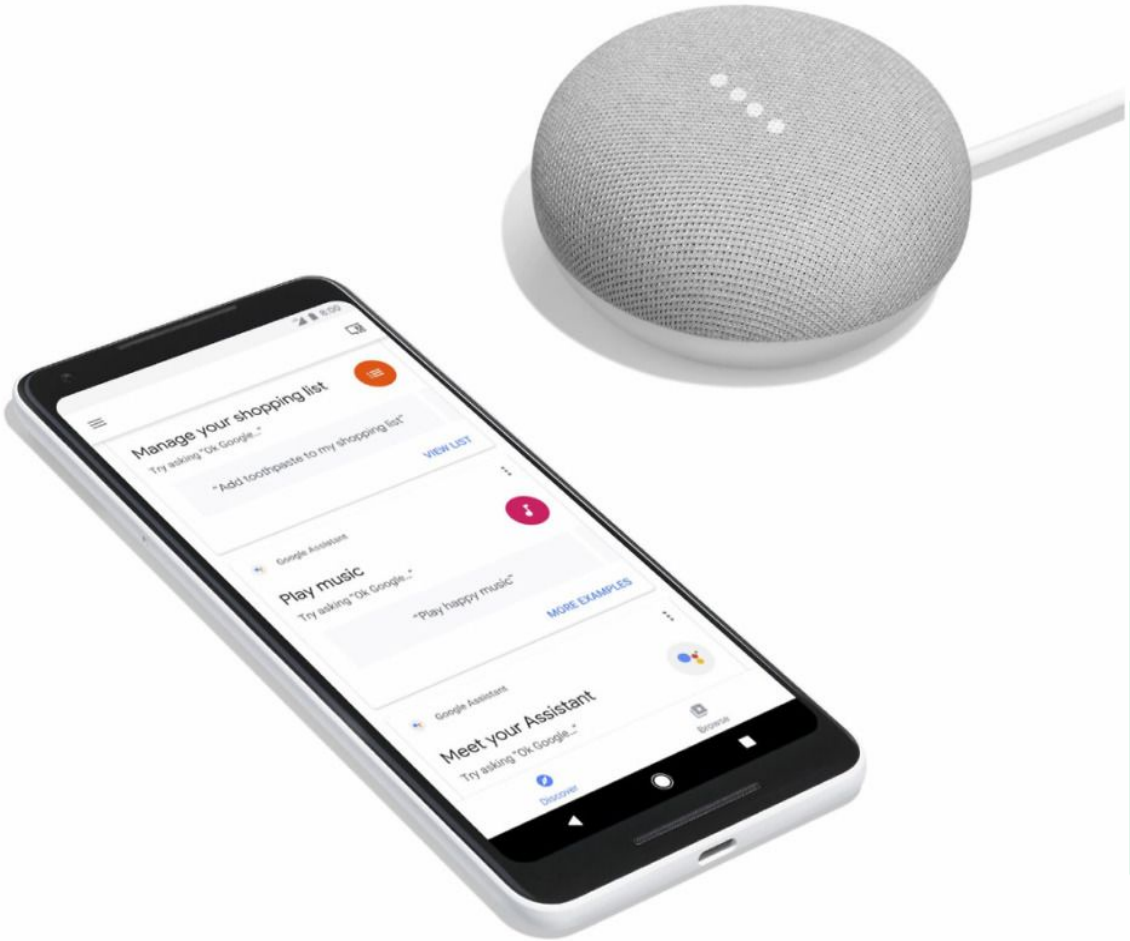
Flow Charts for The Preliminary Prototype

Preliminary Prototype

- Focused prototype on the method of data collection
- Flowchart for data collection program using Google Actions
- Flowchart for data display to Ms. Liu's doctors via an email loop
- Explanation of question structure and expected answers

What We Learned

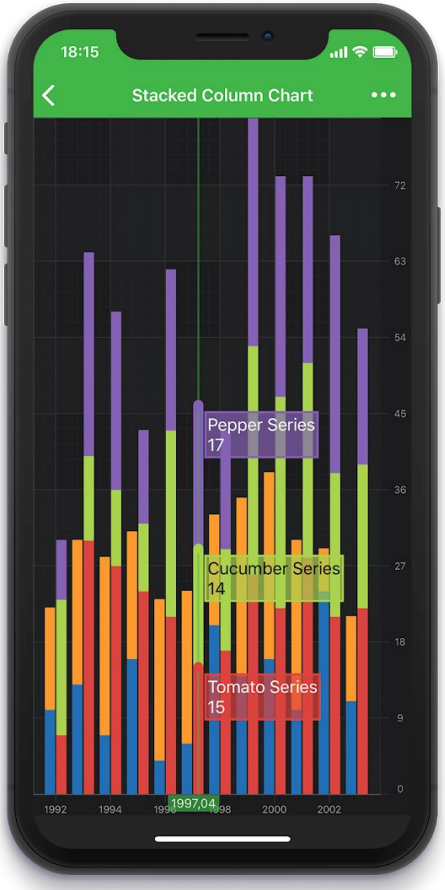
- Pain is very subjective and hard to understand in general
- Doctors would like to recognize a daily pattern
- In a voice-based program, it is important to implement exception handling
- A Google Home would be the better choice over an Amazon Alexa



Revisions

- Record symptoms twice a day, in the morning and evening
- Request pain ratings regarding specific body parts
- Request pain, swelling, and redness ratings on a 1-5 scale
- Decided to develop a compatible app

The Final Prototype



Data Display

When required, data is displayed to either Ms. Liu or her doctors.

Compatible App

The app allows the accessibility of all data and its collection.

Cloud Storage

All data is stored on the server, and is accessible by the app via wifi.

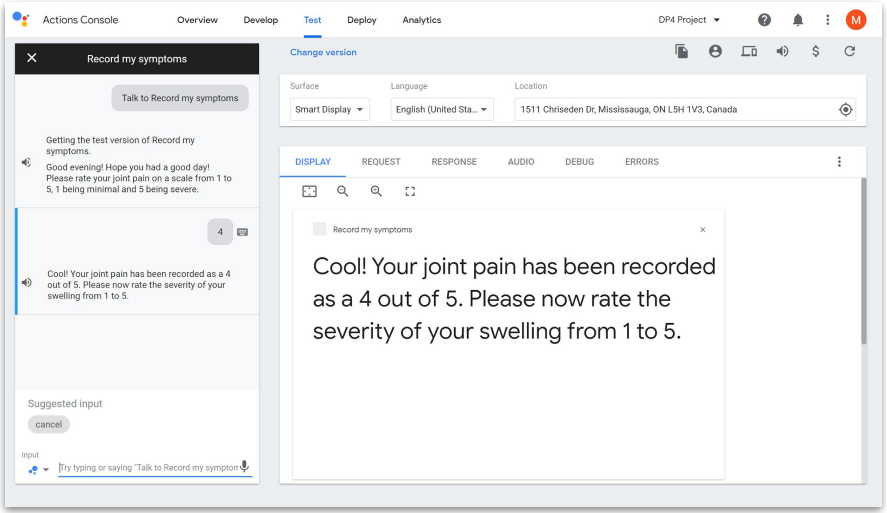
Twilio

Twilio sends the raw data as a text file to the storage server.

Data Input

Ms. Liu records data by interacting with the Google Home.

Google Actions Console



Developing The Product

- Using the Google Actions Console to develop the program
- Using DialogFlow to build a voice-recognition software
- Using Twilio to send data towards a cloud-based storage server

```python
from flask import Flask, request
from twilio.twiml.messaging_response import Message, MessagingResponse

app = Flask(__name__)
@app.route('/sms', methods = ['POST'])

def sms():
    number = request.form['From']
    message_body = request.form['Body']
    resp = MessagingResponse()
    symptoms = open('Symptoms.txt', 'a')
    symptoms.write(message_body)
    symptoms.close()
    resp.message('Hello {}, you said: {}'.format(number,message_body))
    return str(resp)

if __name__ == '__main__':
    app.run()
```

Twilio Python Code

Verification

- Input software tested in the Google Actions Console
- Testing the Twilio-based data transmission
- Testing the display of data within the app
- End-user interviews


Thank you!