

# Project Plan

By Cianna Grummer  
SmartStride



# Goals and Motivation

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- Develop a device to assess the severity of Idiopathic Toe Walking (ITW) and support rehabilitation
- Create a database and website to monitor patient progress remotely
- Enable both patients and doctors to track progress and complete routine check-ins from home
- Reduces stress for young children with autism by avoiding disruptive doctor visits
- Includes a communication system for doctors to set and track patient goals
  - *Patients can view goals and understandable rehab progress updates*



# Algorithms and Tools

- AWS Amplify
  - RDS
  - Lambda
  - API Gateway
  - JavaScript
  - HTML
  - CSS
  - MySQL
- Amazon Web Services
- S3 Bucket
- Raspberry Pi



# Progress Summary

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<b>Task</b>	<b>Progress</b>	<b>To Do</b>
Website Structure	100%	N/A
Database Structure	100%	N/A
Create Login for Doctors and Patients	100%	N/A
New User Sign Up	100%	N/A
Forgot Password Feature	100%	N/A
Display Patient Data	100%	N/A

# Evaluation

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## **Usability:**

*New users navigate the website or complete a task starting from the home page*

*Measured by task completion time and user rating*

## **Reliability:**

*Conduct multiple tests for login and data upload*

*Compare successful attempts to total attempts*

## **Accuracy:**

*Verify uploaded data against sample data*

*Compare correctly inputted data to total inputted data to assess accuracy*



# Milestone 4



<b>Task</b>	<b>Progress</b>	<b>To Do</b>
Setup AWS's IoT or S3	20%	Research and set up IoT or S3 to connect to amplify
Connect Raspberry Pi to lambda function	30%	Research and download AWS packages on pi
Create a new webpage for drag and drop	0%	Create the webpage and design GUI
Create drag and drop functionalities	0%	Create the lambdas to process the data and upload it to the patient's session data table in RDS database
Connect device to website	35%	Work with Bela to make the ESP 32 connect to the pi to collect data to be sent to the website

# Milestone 5

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## **Update Database Structure:**

- *Current structure is outdated due to changes in hardware data collection*
- *Final database modifications depend on group discussions and data delivery decisions*

## **Update Graphs for Patients & Doctors:**

- *Adjust graphs to align with new data collection methods*
- *Rename existing graphs for better user understanding*
- *Add a pie chart showing the percentage of normal, mild, and severe ITW steps per month*

## **New Page for Past Results:**

- *Create a webpage displaying historical pie chart results by month*
- *Possible inclusion of additional month-by-month data, pending further discussion*



# Milestone 6

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## **Update User Guide:**

- *Revise the device guide on the website for proper usage*
- *Include a website user guide for both patients and practitioners*

## **Update About Us Page:**

- *Add details about the BME and SE teams behind SmartStride*
- *Provide background on the motivation for creating the device*

## **System Testing & Evaluation:**

- *Conduct full system testing and demonstration*
- *Evaluate usability, reliability, and accuracy*

## **Additional Deliverables:**

- *Create a User Manual for patients and practitioners*
- *Develop a demo video showcasing the system*





The image features a light gray background with decorative white line-art illustrations of leaves in the corners. In the top-left and bottom-right corners, there are clusters of several pointed, oval-shaped leaves on thin stems. In the bottom-left and top-right corners, there are single, larger, heart-shaped leaves with prominent veins. The word "Questions?" is centered in a black serif font, with a short horizontal line underneath it.

Questions?

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