DTIL PROJECT REPORT

ON

Mobility System for Person with Disability

Submitted By,

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(F.Y. BTech CSE)

Guide

Dr. Ajit Muzumdar sir.

Prof. Pravin Chokakkar sir.

SANJIVANI UNIVERSITY

In the academic year 2024-2025

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CERTIFICATE

This is to certify that

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Have successfully completed their DTIL project report

On

Mobility System for Person with Disability

Towards the partial fulfillment of Bachelor's Degree

In Computer Science Engineering

During the academic year 2024-25

Prof. Pravin Chakokkar **Dr. Ajit Muzumdar**

Acknowledgement

Completing the semester on mobility systems for people with disabilities was just one of the experiences. It has helped us better understand mobility by using new and creative ideas. This journey had many activities that we embark upon to help improve our abilities and improve our skills. The journey would not have been easy but was made possible by the collaboration of all members in the team.

We would like to sincerely acknowledge and appreciate our guide, Dr. Ajit Muzumdar sir for offering us a memorable course and journey we've now completed. And our Semester Coordinator Prof. Pravin Chakokkar, for highly valuing their relentless guidance and support in the entire process.

Their expertise and helpful feedback gave us a deeper understanding and clearer approach to the topic.

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Report

1. SDG Topic Selection

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1.SDG Topic Selection:

SDG10

For our project we selected the topic:

Mobility System for People with Disability under SDG10(Reduced Inequalities)

We selected this topic to help empower people who face discrimination due to their physical Disabilities.

2.Mindmap:

For our project “Mobility System for Person with Disability” we prepared a mind map. We categorized several words relate to mobility in eight different categories according given below:

1.Mobility Devices

2.Accessibility Features

3.Assistive Technology

4.Types of Disabilities

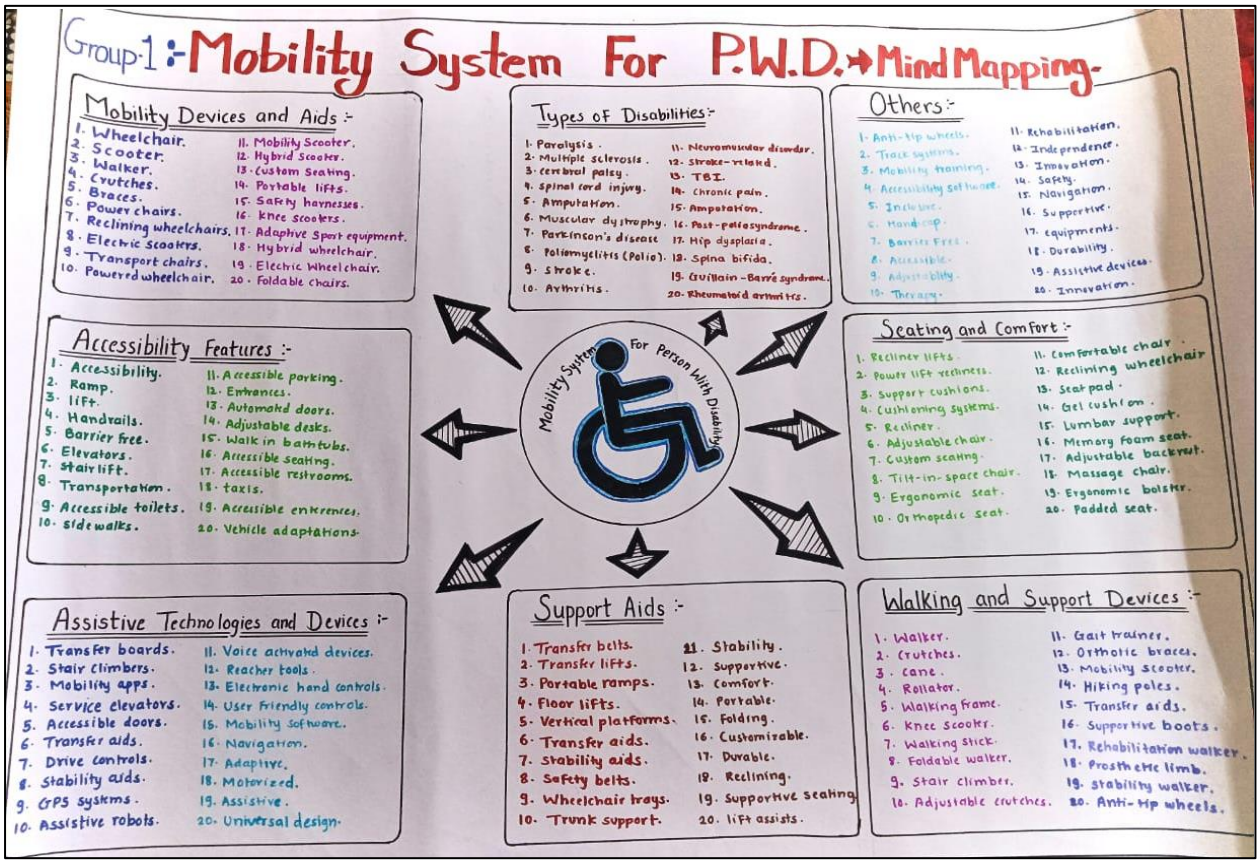
5.Support Aids

6.Seating and Comfort

7.Walking and support Devices

8.Others

We came up with more key words related to these topics to gain a wider view of out topic



3.5W’s 1H:

The 5W’s 1H activity includes Wh-type of questions which consists of 5W questions that are What?, Who?, Why?, Where? , When? and 1H that is How?

We framed 5 question each of the type and also found their answers by studding the topic.

Thinking about these questions helped us understand the problem by showing how immobility affects people in different situations, like at home, work, or school, etc.

4.Theory of Prioritization:

In this activity we thought about different problems faced by us while working and implementing our project. We found 15 problems and prioritized them according to their weights.

This helped us gain further understanding on the problem we want to focus on to come up with a solution. [10gm, 100gm, 1000gm]

5. Problem Statement:

From the Theory of Prioritization, we framed our problem statement as:

“Current mobility system management needs advancements with proper cost for product.”

We now had the clear problem statement which we had to frame a solution on.

6. SCAMPER Activity:

Substitute, Combine, Adapt, Modify, Put to another use, Eliminate, Reverse.

Combine

We chose to use the combine tool as we wanted to merge in different ideas and come up with something that served multiple purposes.

This activity helped us understand how to utilize already available resources and to pave the right method for out ideas.

7. End-user Persona:

We created two personas of two different end users. Both are facing mobility problems due to different disabilities.

First persona is of 67-year-old woman called Suman who is suffering from arthritis which causes severe pain. This makes her life difficult.

Second persona is of 18-year-old boy called Rohan who has a paralyzed left leg causing difficulties in day to day life.

This activity helped us understand our end users well, to know the diversity we were exploring in the spectrum of Disabilities.

8. Journey map:

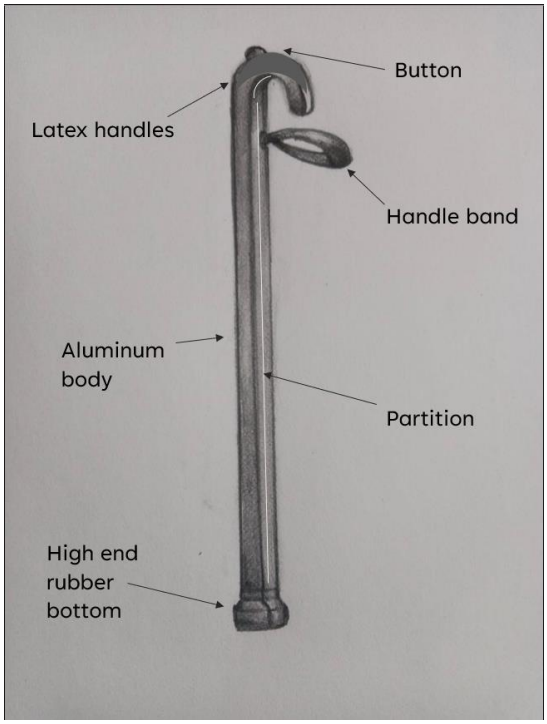
Journey map helped us understand a user experience when they used our model.

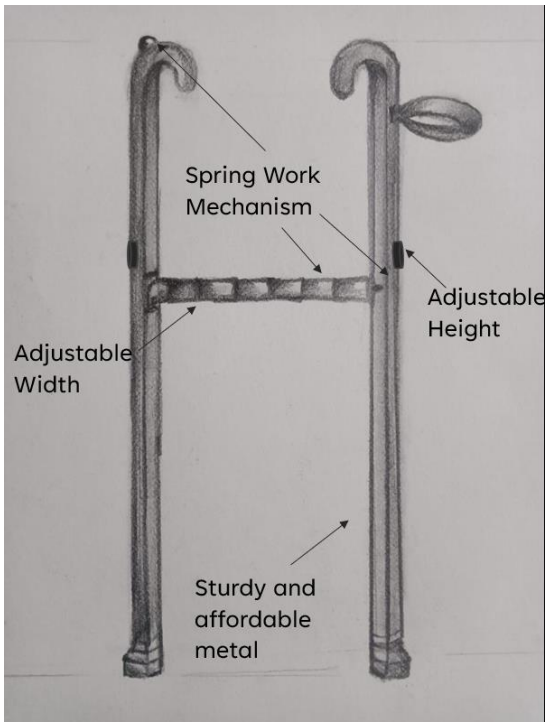
While the Y axis represented their confidence level, X axis represented different stages of using the model.

We showcased 2 journey maps, one of Mukti and one of Nimesh.

It helped us identify major points and think of any improvement we could add to the model.

9. Model Prototype or Design:





10. Working of the model:

1.User buys the model

2.Walking stick form: Like any other normal walking stick with height adjustments and a sturdy handle band

3.Pressing the button: The spring mechanism in the stick activates to split open the stick from the middle

4:Walker form: After the opening process it turns into a two-legged sturdy walker whose width can be adjusted as per the users need.

11. Discussion on the usability of the model:

Affordable: The model is made out of materials such that it's cost would be affordable

Multipurpose: The dual setting makes it multipurpose. Utilizing in normal walks, climbing stairs, passing through a bumpy way, crowded areas, etc.

Easy to use: The simple spring mechanism makes it easy to use. Ensuring people of higher age groups are comfortable with it.

Adjustable as per needs: It can be adjusted as per the user's height and desired width.

Lightweight and Durable : The metal makes it lightweight and durable. Ensuring it serves its purpose and does better justice to its price.

12. Conclusion:

The walker cane is an affordable, multifunctional, easy-to-use aid for people of all ages. It has adjustable settings, is lightweight but of long-lasting materials, and a simple internal spring mechanism make it comfortable and practical. It is therefore appropriate for day-to-day activities: walking, climbing stairs, or entering crowded places. This design is quite functional and durable.