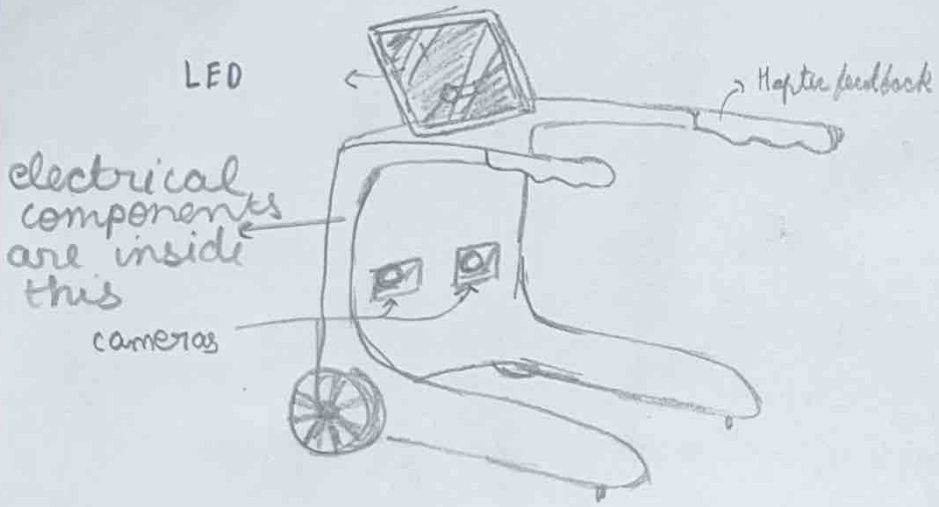
Group code: Tue-20 **Student names:** Rishabh, Sahil, Sanat, Bhuvansh, Saarthak **EDL 2025**

Project title: Smart Walker for Clinical Rehabilitation. **Date:** 21.01.25

Use your notebooks for discussions and rough work. Fill out this sheet after working individually and discussing within your team.

1. **In simple words, describe what you are going to build in your project, what its purpose is, and how it will function.** Be as detailed as possible, covering all the major aspects of your project.
   a. What is the main goal of your project?
   b. What problem does it solve, and how?
   c. Who will use your project, and in what context?

   Draw a pencil sketch of what your project will look like at the end of the course, for final demo.

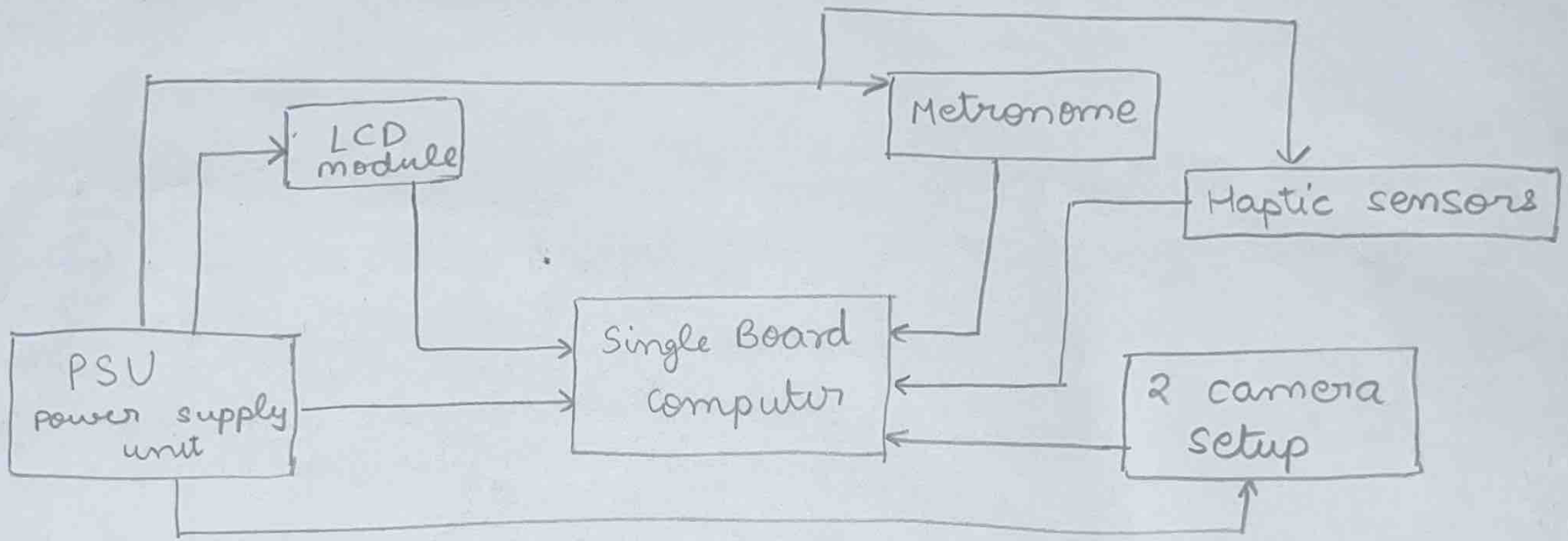


a) The goal of this project is to make a smart walker device which can be used to measure/capture gait patterns/walking patterns and derive relevant information from it for better and efficient Rehabilitation.

b) We can capture the data using camera and provide feedback to patient in real-time and also have recording of the session which can be shared to doctor for supervision.

c) Patients recovering from accidents, strokes, suffering from conditions to compromise their mobility and need assistive aid for faster recovery

2. **Draw a block diagram of your project.** Create a visual representation showing the key components or subsystems of your project. For each block in the diagram, briefly explain its main function and how it fits into the overall system.
    a. What are the main subsystems or modules of your project?
    b. How do they interact with each other?



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3. **Write down details for these blocks:** What are the key performance metrics for each block (e.g., power, size, speed)? What trade-offs are you considering in your design choices? Are there any constraints or limitations for each block?

Block	Key specifications of this block	Design choices for this block
PSU	According to some sources on the internet we need 5V 2A supply for powering a Pi 5	we could use lipo cells in parallel with a battery protection circuit or an already available PSU with similar specs
Single source computer	Currently we dont expect using heavy AI models we are planning to use 2 camera stereo setup so a Pi 5 should be sufficient	we could use a Pi compute module and design a custom PCB that has only the peripherals we require instead of a Pi 5 block
Camera	We require 1080p video for depth detection.	We would use Pi Camera module.
LCD	For User Interface	A Large Touch Display (13' inch)

4. **What are the unknowns or uncertainties in this project?** Identify aspects of your project that you are uncertain about or that require further research. This may include areas where you know what you need to do but are unsure how to approach it.
    a. What technical challenges or questions are you facing?
    b. Are there any assumptions you must make in order to move forward?

- Use of stereo camera for accurate detection of feet
- Role of A.I.. (using deep learning models.)
- Power Supply Unit design.
- How would we make the frame of the walker

Other things to consider from now until Milestone 1 deadline:

5. **Roles and Responsibilities: How will the work be divided among team members?** Assign specific tasks and responsibilities to each team member. Be clear about who is responsible for each part of the project.
    a. Who will work on which blocks or subsystems?
    b. What are the deadlines for each task?
    c. How will the team communicate and coordinate to ensure everyone is on track?

6. **Next Steps: What is your plan for the next phase of the project?** Outline what needs to be done in the short-term to move forward.
    a. What are the immediate next tasks or priorities?
    b. Are there any dependencies between tasks? How will you handle these interdependencies?
    c. What resources or materials do you need to proceed?

7. **Feedback and Collaboration: How will you gather feedback and collaborate during the project?** Describe how your team plans to share progress, give and receive feedback, and collaborate throughout the course of the project.
    a. How often will you check in with your team members?
    b. Will you conduct regular brainstorming or review sessions?