IDEA_CRAFTERS

EMPATHY

Date: 16/11/2023

Interviewer	Client	Observer
Have you faced any problem while carrying any luggage on the stairs?	Yes, there are lots of problems. We don't experience the same feeling when taking load on road and on stairs	According to the conversation we can figure out that people are facing difficulty in carrying the luggage on the stairs.
What's the weight of the luggage that you carry on the stairs?	Around 15-20 kgs	
Do you have any health issues while carrying heavy loads on stairs?	Lifting heavy luggage can result in muscle strain and back injuries	
How long does it take to carry luggage on the stairs?	It depends on number of stairs	
What can solve the problem of carrying trolly's and other heavy luggage's on the stairs?	Any new improvisations that could ease the travel such as trolley movement on the level road	The client is trying to find the main problem and collecting suggestions to make a product design which is convenient.
What do you expect regarding the specifications of new product	I feel any new improvisation should not create much difference in carrying the luggage	
Do you face any other problems while carrying the luggage?	Yes , I face problems like carrying some objects like bottles, ……etc	The Interviewer by asking the question is thinking of new additional features to be added.

DEFINE

Date: 20/11/2023

HMW statements

1. How might we reduce the burden of carrying luggage on stairs....

2.How might we replace lifting of luggage on stairs

3.How might we reduce stress on back and hand while carrying luggage

4.How might we give same experience to the user while travelling with luggage on land and stairs

5. What design modifications or advancements can be made to wheels to ensure a smooth and effortless movement of luggage both on regular surfaces and stairs?

6. How might we optimize the size, weight, shape of the luggage to make it more conducive for stair navigation?

7.How can we ensure the safety of both user and surrounding individuals when using innovative luggage transportation system on stairs.

8. Can robotics or automation play can be introduce for solving this problem?

 C

IDEATE

Date: 30/11/2023

Articulation Mechanism: An articulation mechanism allows the wheels to adapt to the angle and irregularities of the stairs, reducing the burden of carrying luggage by enabling smoother navigation.

Wheel Configuration: The three-wheel configuration, especially with a stabilizer or additional support, can help in replacing the act of lifting luggage on stairs by providing better manoeuvrability.

Materials and Design: The choice of materials for construction, along with the design of the wheels, contributes to reducing stress by offering smooth movement and better traction on different surfaces, including stairs.

Stabilization Technology: Stabilization technology ensures stability on stairs by using sensors, gyroscopes, or feedback mechanisms. This consistency in stability provides a similar experience regardless of the terrain.

Power and Control System: The power and control system, managing speed, direction, and wheel orientation based on user input and environmental conditions, helps maintain a consistent experience on different terrains.

Customizable Compartments: Create luggage with adjustable compartments that allow users to distribute weight evenly and accommodate different-sized items. This helps in optimizing the balance and overall shape for easier stair navigation.

Lightweight Materials: Utilize lightweight yet durable materials to reduce the overall weight of the luggage, making it easier for users to handle and transport on stairs.

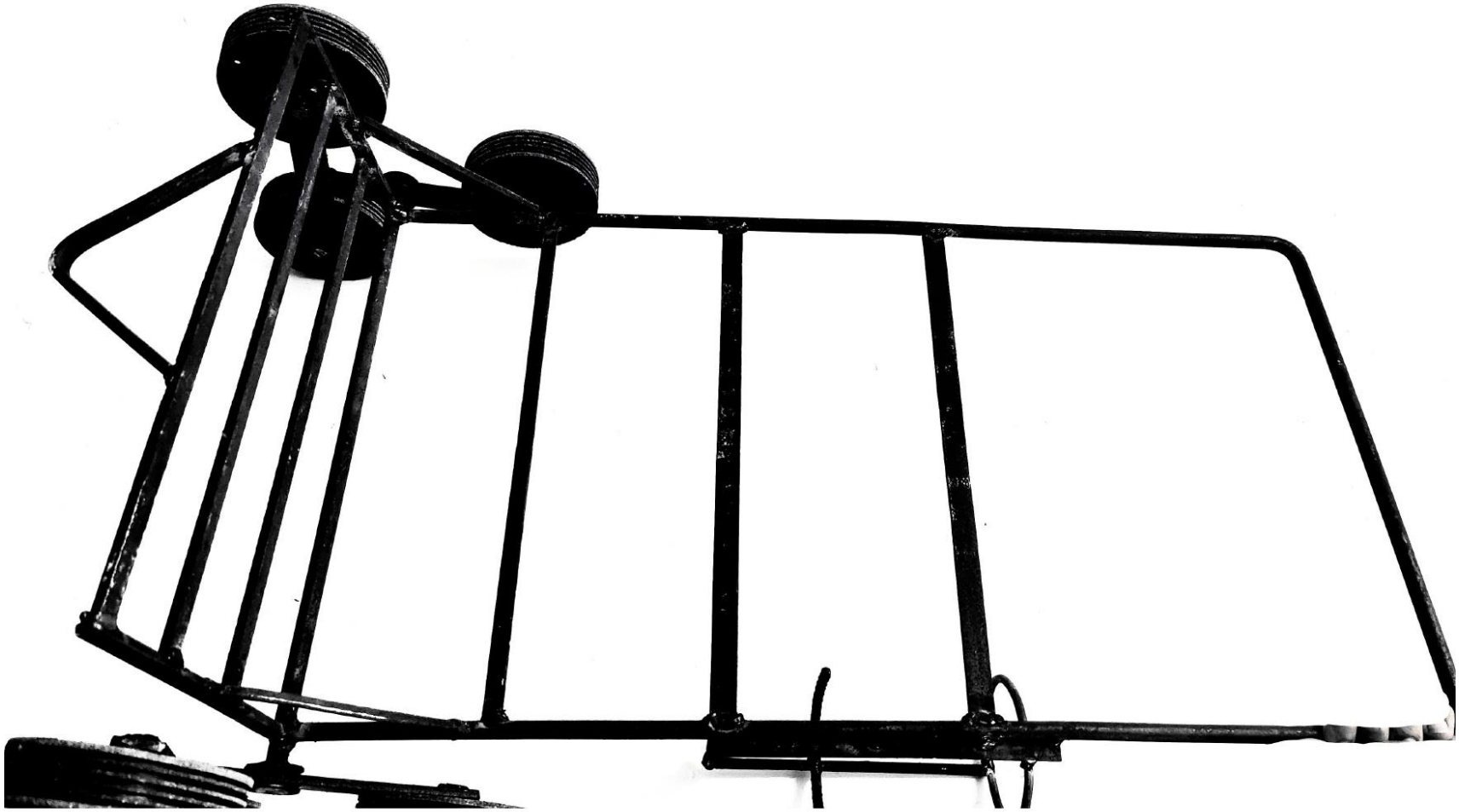
User Guidelines and Training: Provide clear instructions and guidelines on how to operate and maneuver the innovative transportation system on stairs. Offer training sessions to ensure users understand safety protocols and proper handling techniques.

Certification and Standards: Comply with safety standards and certifications specific to luggage transportation systems. Adhering to these standards ensures that the product is designed with safety as a priority.

Smart Wheel Technology: Implement robotic wheels equipped with sensors and AI algorithms that adjust their movement and orientation according to the staircase's structure and surface. This technology allows for adaptive and efficient movement on stairs.

PROTO-TYPE PHASE

Date: 6/12/2023



TESTING PHASE

Date: 6/12/2023