Mobile Computer Cart

Concept Generation and Selection

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Overview

• Project Description
• Ten Concepts
• Decision Matrix
• Final concept selection
• Project Progression
• Conclusion
Project Description

• Client : Dr. Srinivas Kosaraju

• Project: Dr. Kosaraju is currently managing multiple student teams for capstone classes at Northern Arizona University. He is requesting for two mobile computer carts capable of traveling outside to perform experiments.
  – Must be adjustable, weather proof, and each cost under $500

• Need: The current available mobile computer carts are too expensive and are not designed for outside use.
Concepts 1-2

**Design #1**

**Design #2**
Concepts 3-4

Design #3

Design #4

Joel Asirsan
Concepts 5-6

Design #5

Design #6

Abdulrahman Alhamdi
Concepts 7-8

Design #7

Design #8

Abdulrahman Alhamdi
Concepts 9-10

Design #9

Design #10

Abdulrahman Alhamdi
## Decision Matrix #1

<table>
<thead>
<tr>
<th>Concepts</th>
<th>Criteria</th>
<th>Score</th>
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<td>Ease to Manufacture</td>
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Table 1: Decision Matrix 1

10 = High, 1 = Low
# Decision Matrix #2

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<tr>
<th>Concepts</th>
<th>Weather Proof</th>
<th>Durability</th>
<th>Overall Adjustability</th>
<th>Storage Space</th>
<th>Maneuverability Inside / Outside</th>
<th>Weight</th>
<th>Overall Size</th>
<th>Score</th>
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Table 2 : Decision Matrix 2

10 = High , 1 = Low
Final concept selection

• Design #7 : Two wheeled dolly
  – Adjustable monitors and keyboard
  – Large wheel for rough terrain
  – Interior storage space
  – Weather proof
    • Retractable lid
    • Collapse everything inside compartment
    • Window
  – Fits through doors
  – Handle for easy maneuverability

Figure 1 : Design # 7
Two wheel Dolly

Figure 2: Design #7

Figure 3: Monitor mounts

Figure 4: Design #7 frame

Figure 5: Wheel design
Final concept selection

- **Design #9: Four wheeled cart**
  - Adjustable monitors
  - Large amount of storage space
    - CPU and experimental equipment
  - Stable transportation
  - Four large wheels
  - Weather proof
    - Retractable door

Figure 6: Design #9
Four wheeled cart

Figure 7: Design #9

Figure 8: Door hydraulics

Figure 9: wheel design

Figure 10: Design #9 frame
Project Progression

Figure 11: Gantt Chart
Summary

• **Need:** The current available mobile computer carts are too expensive and are not designed for outside use.

• **Ten concepts**
  – Each team member came up with two different computer cart designs.

• **Decision Matrix**
  – Decided on ten different criteria to judge the ten concepts on.

• **Concept selection**
  – Design #7 with two wheels had the overall best score from the decision matrix and is the first cart we will be designing.
  – Design #9 with four wheels had the second overall best score and will be the second cart we will be designing.

• **Project Progression** – Two concepts have been picked and we are currently on the right track to start the engineering analysis.
References


• Sandusky. Sandusky Lee CW Steel Crate Wagon, Green, 800 lbs Load Capacity, 27-3/8" Height, 48" Length x 24" Width [online]: Available: http://www.amazon.com/dp/B006P5JI5M/ref=wl_it_dp_o_pC_nS_ttl?_encoding=UTF8&colid=2AE GDPGALE3FE&coliid=I3F4WR3BCJ2D0Y


