

Project Design Specifications

#42 – Pinch Meter Device

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Client: Elizabeth Bourne

Advisor: Professor John Webster

Function:

Our mission is to redesign a pinch meter device to be more precise, patient friendly and practical for recovering stroke victims. Pinch meter devices are used to measure the hand strength of stroke patients, which is an indication of their recovery progress.

Client Requirements:

- Ergonomical
- Effective
- Portable

Design Requirements:

- 1) Physical and Operational Characteristics
 - a. Performance Requirements
 - i. Handheld
 - ii. Durable
 - iii. Portable
 - iv. Larger pinch pad compared to current device
 - v. Battery Powered
 - b. Safety
 - i. No exposed wires
 - ii. Comfortable pinch pad
 - iii. No sharp edges
 - c. Accuracy and Reliability
 - i. Measures range 0-2.27 kg
 - ii. Measures in 0.09 kg increments
 - d. Life in Service
 - i. 2-5 years
 - e. Shelf Life
 - i. Batteries must be replaced twice a year
 - f. Operating Environment
 - i. Rehabilitation Center's rooms
 - g. Ergonomics
 - i. Comfortable to pinch
 - ii. Able to be held by technician
 - h. Size
 - i. Less than 10 cm x 10 cm x 15 cm
 - i. Weight
 - i. Less than 2.27 kg
 - j. Materials

- i. No latex
 - ii. Easily cleaned
 - iii. Long lasting
 - k. Aesthetics
 - i. Pleasing to the eye
 - ii. Smooth pinch pad
- 2) Production Characteristics
 - a. Quantity
 - i. One model
 - b. Target Production Cost
 - i. Under \$100
- 3) Miscellaneous
 - a. Standards and Specifications
 - i. Must be tested to ensure patient comfort and product performance
 - b. Customer
 - i. Rehabilitation Centers
 - c. Patient-related concerns
 - i. Ease of use
 - d. Competition
 - i. Fabrication Enterprises
 - ii. Hoggan Health Industries
 - iii. Jamar