Revo Stationary Bike with “Generciser” Technology

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Rationale for Study

- People who are elderly, recovering from hip or knee complications, or are otherwise disabled have difficulty getting on conventionally designed stationary bikes.
- Many modern stationary bikes power the user interface with power generated by the user, but no further use is implemented.
- Human power in outer space could serve a dual purpose for maintaining muscular integrity of astronauts and generating power to be used by the space station.
Market Summary

- Rehabilitation Services
- Physical Training Establishments
- Private Home Use
- Space Applications (NASA)
Budget Summary

- Prototype Estimate: $2,537.76
- Product Estimate: $888.22
- Stationary bikes range from $100 to more than $5000 depending on their specific functions, capabilities, and level of adjustability.
- Typical stationary bikes found in physical training establishments from companies such as Star Trac and Life Fitness cost approximately $2,500.00 each.
Design Summary

- 3 Component Design
- Head Unit
  - Pedal assembly, user interface, Generciser technology
- Rehabilitation Saddle
  - Motorized adjustability
- Conventional Saddle
  - Manual adjustability
Head Unit

User Interface

Adjustable Neck

Pedal Assembly

Rear Unit Track
User Interface

- Speakers
- Virtual 400m Track
- LCD Display
- Exercise Displays
- Cupholder
- Ipod Port
- Heart Rate Sensor Plates
- Bookshelves
Rear Units

Rehabilitation

Adjustable Back
Motor Housing
Slot Tracks for Head Unit

Conventional

Manual Adjusting Seat
Constraints

- Economic constraints
  - Little money for personal spending
  - Personal fitness not priority
- Production costs
  - Product Estimate: $888.22
- Sustainability
  - Regular maintenance, part replacement
Constraints

- Health and safety
  - One primary purpose is rehabilitation, safety must be assured

- Manufacturing
  - Making the head unit with interchangeable rear units
  - Must be very customizable with settings for each user

- Knowledge base
  - Applying the “Generciser” Technology
Positives

- Environmental
  - Compact design, “green” capabilities of producing energy
  - Can be made of recyclable materials
- Marketing
  - Change household economics by supplying energy
  - Positive influence on personal health
  - Fits “green” revolution trend
Conclusion

- Needs met
  - Rehabilitation, power supply, space use
- Target markets
  - Rehabilitation facilities, gyms, private use, NASA
- Three design units
  - Head unit, two seats, and “Generciser” technology integration
- Budget
  - Prototype Estimate: $2,537.76
  - Product Estimate: $888.22