Solar-Electric Auto Rickshaw

IPRO 351
Our Team Mission

“To provide India with a cleaner and environmentally friendly auto rickshaw that is both economically and technically Feasible”
What We’ve Been Doing

Research on:

- Business and the Market
- Technology
Background

- Auto rickshaws are the most popular means of transportation
- Available in diesel, CNG, and LPG
- Start of a five year vision
Business Team

- Research Objective
  - Identify Manufacturers of auto rickshaws; their sales and distribution figures.

- Accomplishment
  - Market is dominated by Bajaj Auto
  - Other Manufacturers
    - Force Motors
    - Atul Auto Limited
Bajaj Auto

- Three-wheeler market Share of 80% (According to Hindu Business Line)

Three wheeler unit Sales

<table>
<thead>
<tr>
<th>Month</th>
<th>September Sales</th>
<th>April-Sept Sales</th>
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<tbody>
<tr>
<td></td>
<td>23118</td>
<td>121796</td>
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<tr>
<td></td>
<td>27870</td>
<td>151558</td>
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Sepember Sales

April-Sept Sales
Oil Dependency

- **Research Objective:**
  - India’s dependence upon foreign oil.

- **Accomplishment:**
  - India’s imports about 70% of their oil
  - Expected to rise by 240% to 5 million barrels a day by 2020.

- *(currently about 2.09 million bbl/day, CIA Fact Book)*
Government Policies

- Reduction of foreign oil dependence
- Promotion of the development of renewable energy source
- Expansion of a cost effective energy supply
- Provide renewable energy to remote areas
What needs to be done

- The profile of the auto rickshaw owner/operator.
- Summary of Economic Issues, Governmental Issues
- Cost Analysis
- Sensitivity Analysis
Technology Goals

- Design hybrid/solar auto rickshaw for India
- Develop energy effective rickshaw
- Suggest (high cost or low cost?) rickshaw
Accomplishments

- Initial design for passenger rickshaw without solar pad
- Simulation result of ADVISOR
What needs to be done

- Choose electrical specifications based on simulations
- Customize design and leverage costs
Next Steps

- Interface solar pad in design
- Search for actual electrical components
- Make analysis for cost and efficiency aspects
Problems

- User research is taking longer than anticipated
- Trim Design Phase
Final Thoughts