Sketch Model Review
MotoThresher
Empowering Tanzanian Farmers
Motivation
Motivation
Motivation
# Product Contract

A motorcycle-powered grain thresher for Tanzanian farmers

<table>
<thead>
<tr>
<th>Customer Need</th>
<th>Product Attribute</th>
<th>Engineering Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>More efficient than traditional methods</td>
<td>Throughput [kg grain processed / person-hours]</td>
<td>50kg/hour</td>
</tr>
<tr>
<td>Can be towed by a motorcycle</td>
<td>Weight [kg]</td>
<td>&lt;50kg</td>
</tr>
<tr>
<td>Affordable</td>
<td>Cost [$USD]</td>
<td>~$100USD</td>
</tr>
<tr>
<td>Adaptable to various motorcycles</td>
<td>Universal connection</td>
<td>No modifications to bike required</td>
</tr>
<tr>
<td>Multi-crop capabilities</td>
<td>Capable of processing different inputs</td>
<td>Rice, wheat, millet</td>
</tr>
<tr>
<td>User operability</td>
<td>Safety</td>
<td>Moving parts not exposed to user</td>
</tr>
</tbody>
</table>
Can we design an effective threshing mechanism?
Threshing
Threshing performance

- Motorcycle speed [rpm]
- Amount threshed [%]

![Graph showing the relationship between motorcycle speed and amount threshed.](image-url)
Can we winnow effectively using a fan?
Winnowing

- Separation of the grain from the husk

- Wind blows lighter material away

- Heavier material collected at the bottom
Winnowing performance

- **Output [%]**
  - High: [100]
  - Low: [50]

- **Fan speed**
  - Low
  - Med
  - High

**KEY**
- Grain
- Husk
Future Plans

1. Threshing
2. Winnowing I
3. Dehusking
4. Winnowing II
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mock-up

target
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