IPRO 317: VOTL FOR THE MASSES

Overview

IPRO 317 serves to develop an affordable mainstream, personal aircraft solution to the masses and to research other applications of such an aircraft.

Our model, the Volar, is a Vertical Take-off and Landing (VTOL) aircraft and would have the capacity to transport one or two individuals. The full-scale project would provide a solution to crowded highways and streets through an aircraft that is easy to use and at a cost that is comparable to an automobile. The micro-scale project would cater to the need of a small, mobile aircraft that can carry small cargo such as a voice recorder or camera.

Testing & Construction

Troubleshooting and resolved problems from previous exercises:
- gimbal mechanism design and testing
- poor poster making
- unable to resolve: ability to emergency lift weight

Frequently Asked Questions

- How much training would you require to become a certified pilot?

Micro scale model

The micro-scale would feature a two-seater, a 15,000 rpm propeller, and a fully-movable gimbal mechanism.

Applications:
- Small commuter transportation vehicle
- Personal transportation method
- Alternative transportation method

Features:
- Dual rotors
- Dual blades are interlocked to cancel rotational stress
- Gimbal mechanism
- General lift and forward motion allow for controllability of plane
- Noise reduction
- Only requires all lift for plane during flight

Specifications:

<table>
<thead>
<tr>
<th>Item</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Empty weight</td>
<td>2.7 lbs</td>
</tr>
<tr>
<td>Full weight</td>
<td>5 lbs</td>
</tr>
</tbody>
</table>

Prototype

The prototype features a two-seater, a 15,000 rpm propeller, and a fully-movable gimbal mechanism.

Applications:
- Small commuter transportation vehicle
- Personal transportation method
- Alternative transportation method

Features:
- Dual rotors
- Dual blades are interlocked to cancel rotational stress
- Gimbal mechanism
- General lift and forward motion allow for controllability of plane
- Noise reduction
- Only requires all lift for plane during flight

Specifications:

<table>
<thead>
<tr>
<th>Item</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Empty weight</td>
<td>0.5 lbs</td>
</tr>
<tr>
<td>Propeller type</td>
<td>2.5 lbs</td>
</tr>
<tr>
<td>Weight</td>
<td>1 lb</td>
</tr>
</tbody>
</table>

Actual Size Specifications:

<table>
<thead>
<tr>
<th>Item</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wing span</td>
<td>20 ft</td>
</tr>
<tr>
<td>Fuselage length</td>
<td>15 ft</td>
</tr>
<tr>
<td>Empty weight</td>
<td>150 lbs</td>
</tr>
<tr>
<td>Gross weight</td>
<td>200 lbs</td>
</tr>
<tr>
<td>Length weight</td>
<td>500 lbs</td>
</tr>
</tbody>
</table>