Vision
## Product Contract

<table>
<thead>
<tr>
<th>Need</th>
<th>Attribute</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Similar thermal insulation as Gumby suit</td>
<td>Thermal insulation</td>
<td>≥0.10 Km²/Watts</td>
</tr>
<tr>
<td>Can be worn the entire day while working</td>
<td>Comfort &amp; Form Factor</td>
<td>Yes</td>
</tr>
<tr>
<td>Can be activated quickly and simply</td>
<td>Ease of activation</td>
<td>&lt; 3 steps to activate</td>
</tr>
</tbody>
</table>
Need One - Mobility

NO/MINIMAL PROTECTION
Need One - Mobility

Different Configurations for Insulation Inflation

Shirt with bubble wrap as insulation
Need One - Mobility

NO/MINIMAL PROTECTION
Need Two - Insulation

NO/MINIMAL PROTECTION

<2 Hours  Survival Time  12 + Hours
Need Two - Insulation

Steady-State Temperatures

\[ T_{\text{none}} = 60.64 \, ^\circ\text{C} \]
\[ T_{\text{neoprene}} = 56.39 \, ^\circ\text{C} \]
\[ T_{\text{air}} = 58.34 \, ^\circ\text{C} \]
Need Two - Insulation

NO/MINIMAL PROTECTION

<2 Hours  
Survival Time  
12 + Hours
Pricing & Consumers

Users: Industrial Boat Workers
Customers: Freight and Fishing Companies
Mockup Model

Two components: bubble wrap shirt and inflatable vest

Lessons learned:
- Mobility
  - Complete when uninflated
  - Small air pockets do not restrict movement
- Insulation
  - Air insulates adequately
- Inflation
  - Achievable with simple components
Moving Forward

Inflation
Optimal configuration of tubes and pockets

Insulation
Air layer thickness

Production
Materials and Sealing