Pipe Knight
Red A
Chilling Facts

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- $15,000 Average insurance claim for frozen pipe damage
- 18% Plumbing failures due to frozen pipes bursting
Why Pipes Burst

Water expands when frozen
Pressure builds between blockage and faucet
Pipes burst due to excess pressure
Opening a faucet provides pressure relief
Key Features

Temperature sensors to place along pipes
Temperature-triggered solenoid valve
Potentiometer for manual control

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Current through Solenoid</th>
<th>Solenoid Core</th>
<th>Valve</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; Threshold</td>
<td>✗</td>
<td>Demagnetized</td>
<td>Closed</td>
</tr>
<tr>
<td>&lt; Threshold</td>
<td>✓</td>
<td>Magnetized</td>
<td>Opened</td>
</tr>
</tbody>
</table>
Future Features

Battery-powered circuit

Easy-to-install attachment