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Low Cost  
Controllable  
Hypoxia Chamber  
for Exploring Stem  
Cell Behavior

# Objective

Design and develop a low-cost hypoxia chamber for stem cell research.



# Product Requirements

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Maintain oxygen levels between 1% and 21%

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Maintain airtight hypoxic environment for 21 days

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Maintain CO<sub>2</sub> levels at 5%

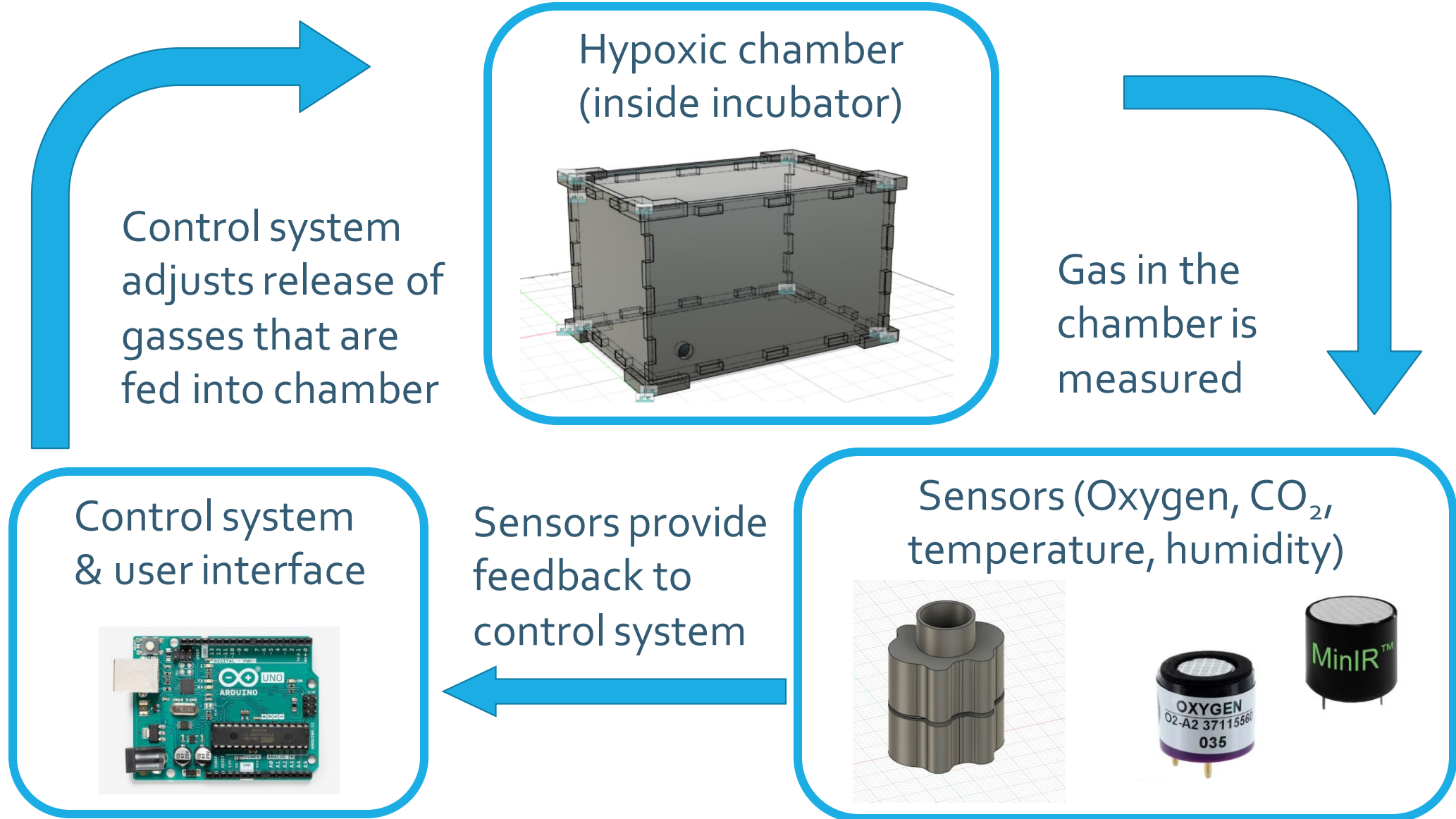
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Fit inside and function within incubators

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Have a simple user interface

# System Components:



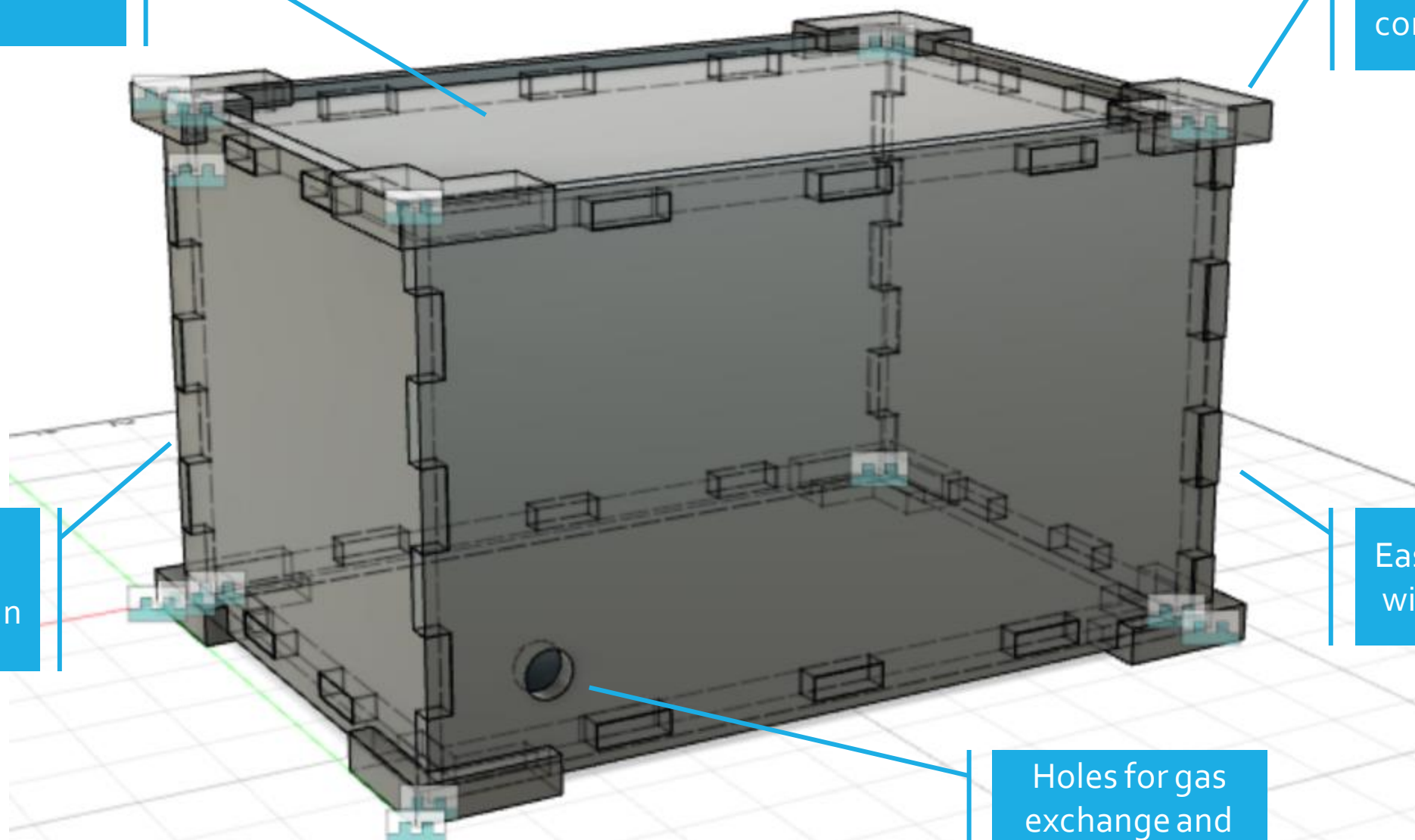
Transparent acrylic sheets

3D printed corner supports

Airtight jigsaw design

Easy access door with O-ring seal

Holes for gas exchange and sensors



# First Prototype



The Prototype Next to a 6 Inch Ruler



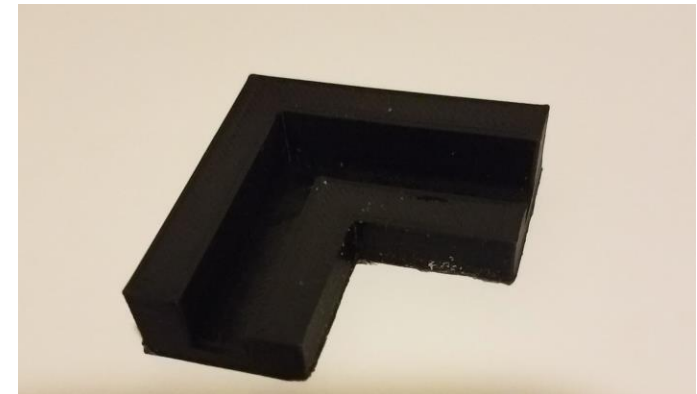
Right Side View



Left Side View



Front View, with 3 plates inside



Corner Piece

# Looking Forward

	Sept	Oct	Nov	Dec	Jan	Feb	March	April
<b>Concept design &amp; Brainstorming</b>								
<b>Modeling, Design, &amp; Prototype Development</b>								
<b>Prototype Development and Modifications</b>								
<b>Product Testing &amp; Modifications</b>								
<b>Final Product Preparation</b>								

**Budget:** \$1000

### Immediate Tasks:

- Implement door and other modifications to 3D chamber design
- Begin purchasing all the materials