

X – FADE: FLIGHT SIMULATOR CHAIR

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The DCS World simulator allows the user to look around inside the cockpit.

BACKGROUND

Due to high operational costs of real airplanes, flight simulators have gained popularity for pilot trainees as well as average enthusiasts. Most existing flight simulators have two or three degrees of freedom of motion and use a combination of computer monitors to display graphics in front of the user. Our flight simulator takes the experience to another level, providing the user with a more realistic and immersive experience of what it feels like to fly a plane through the use of virtual reality goggles.



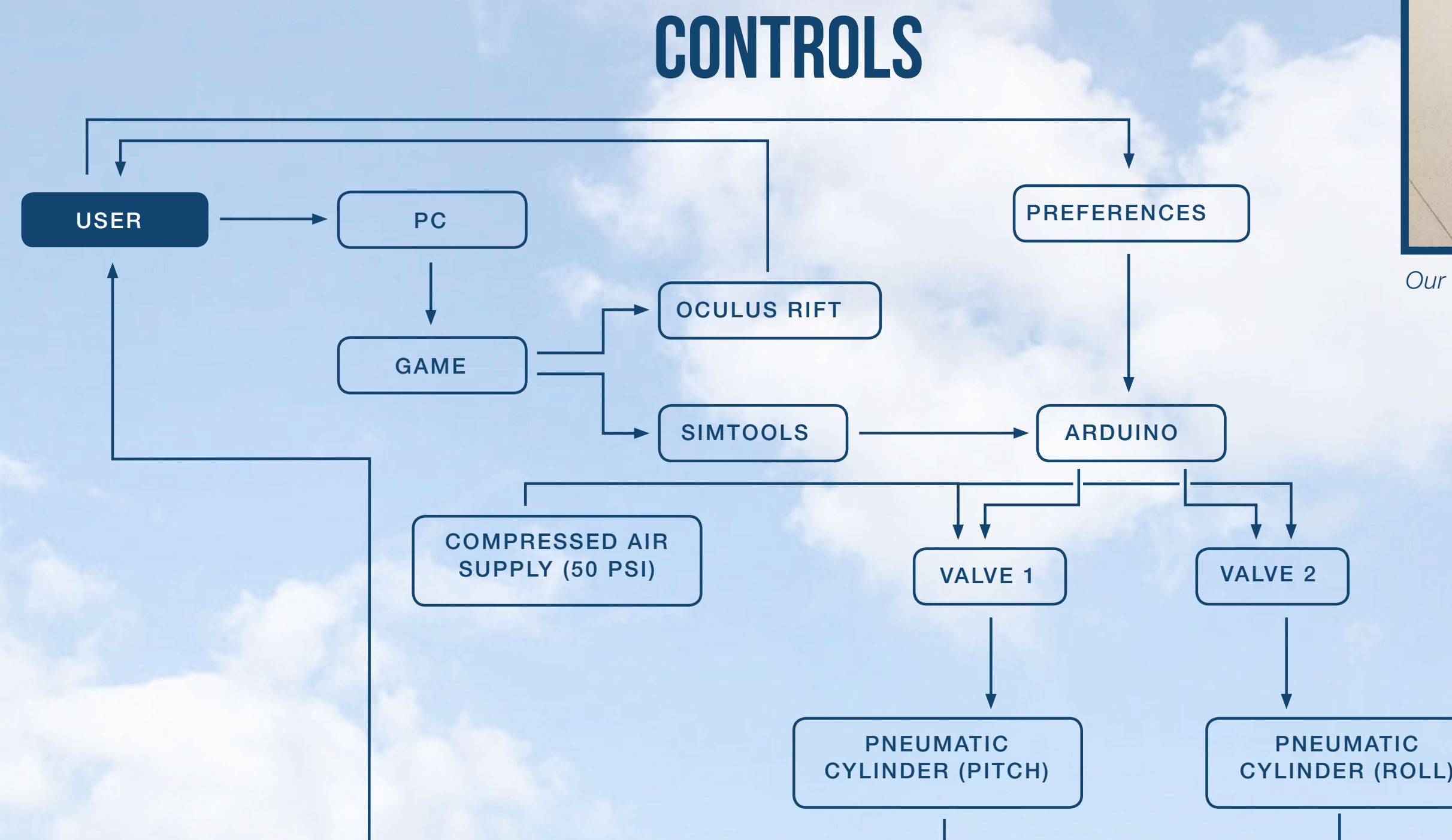
Our current chair uses a computer monitor and does not have any rudder pedals.

PROJECT GOAL

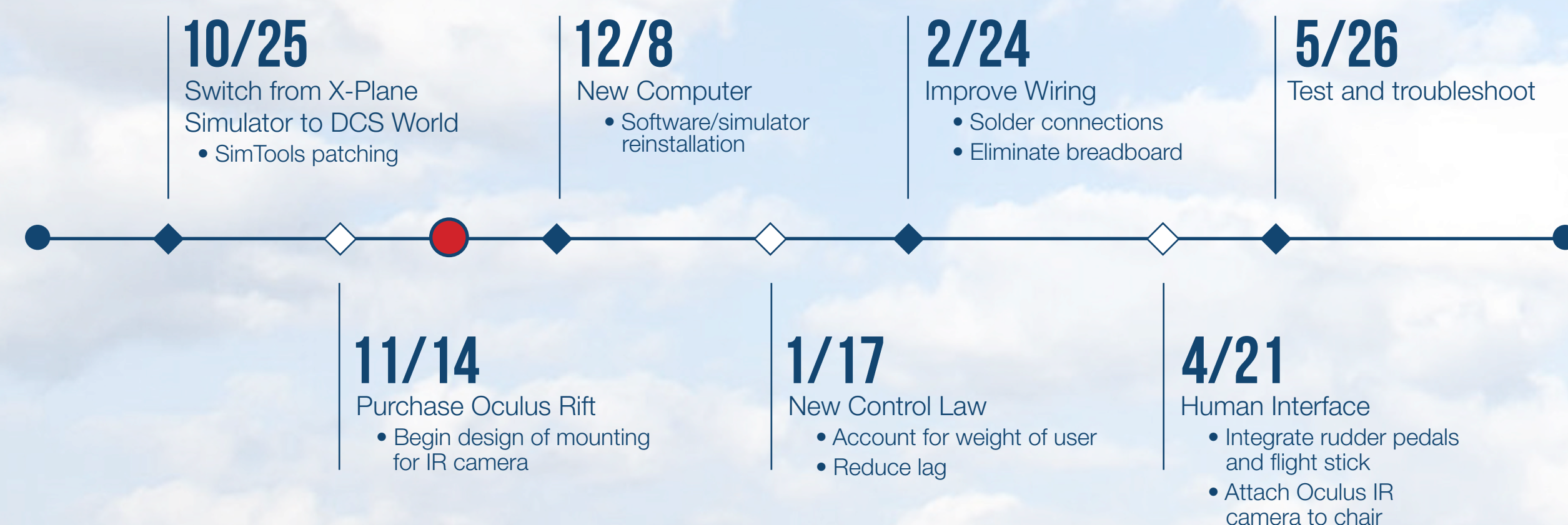
Our goal is to accurately simulate the flying experience by using virtual reality goggles and a dynamic control law that regulates air flow to two pneumatic pistons - one for pitch and one for roll motion to mimic the acceleration forces felt in an airplane. We will also integrate rudder pedals, a weight sensor in the seat, and user-defined gain in order to adjust the response of the system based on the user's preferences.

OBJECTIVES

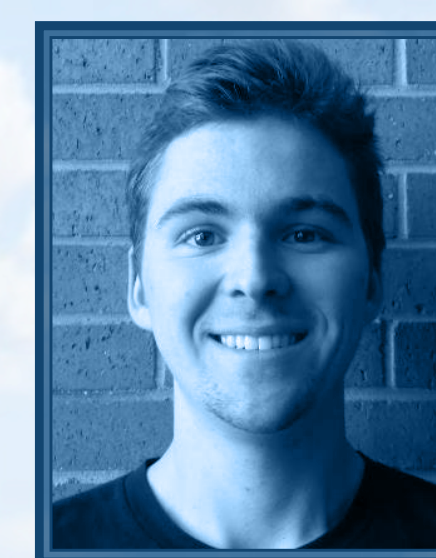
- Integrate Oculus Rift headset and infrared camera
- Improve response-time of system with improved control law
- Make user-friendly
 - Simple startup/shutdown procedure
 - Ease of manipulating gain



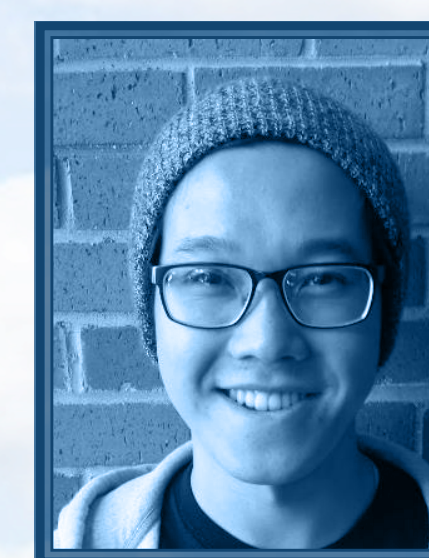
PROJECT TIMELINE



TEAM STRUCTURE



MC HENRY CARLSON
Team Manager



KC HUYNH
Purchasing Manager



MATTHEW GUTIERREZ
Safety Officer



ETHAN PENG
Documentation Manager

ESTIMATED BUDGET — \$2,000

