Multi-User Drone Interface

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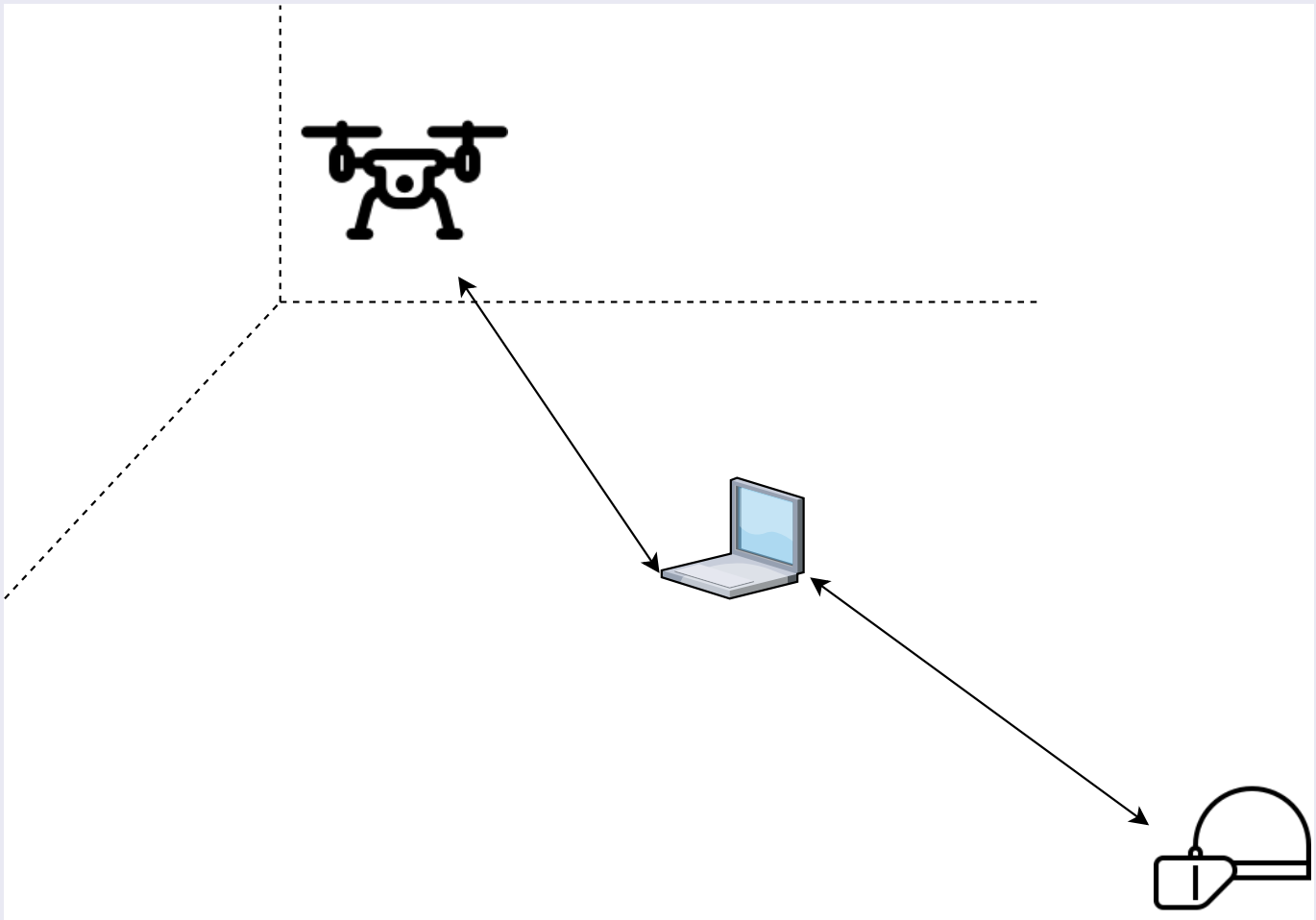
Original System



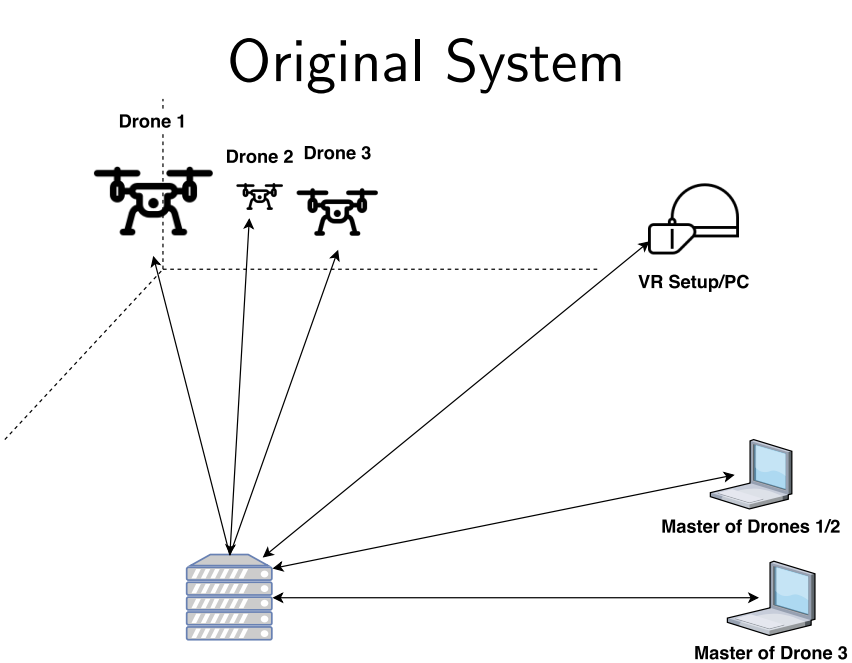
Original System Capabilities

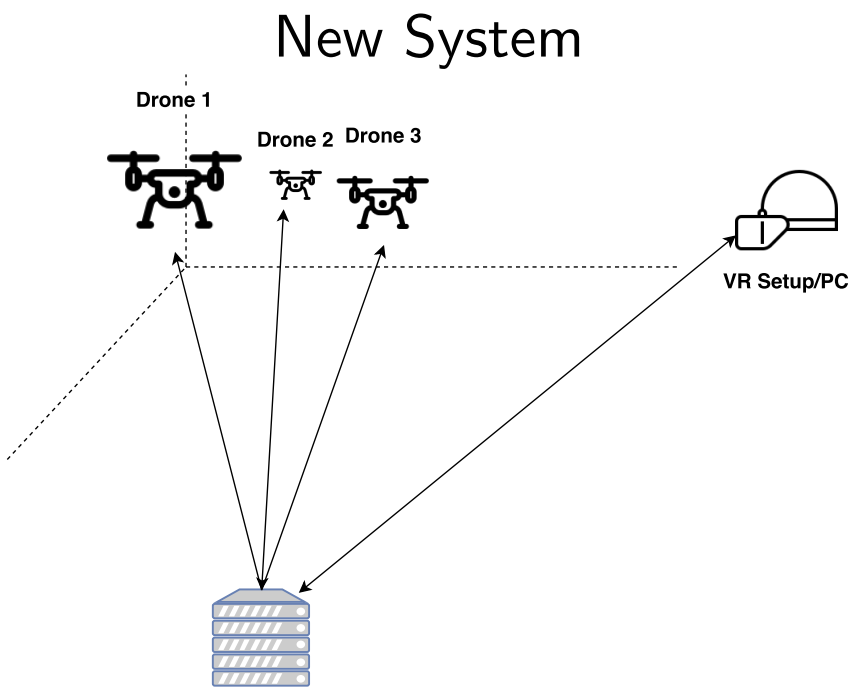
- VR Interface
  1. Virtualized flight space in MDH
  2. Hand controlled flight controls
- Drone Tracking
  1. IR Camera Setup
  2. Sub-millimeter tracking accuracy
- Data Communication
  1. User input translates to flight instructions
  2. PixHawk interprets flight instruction "messages"

Our Goal

- Extend VR system to support multi-user functionality
- Develop features to enable user collaboration
- Modify GUI to interface with multi-user functionality

Architecture Change





Why?

- Allows us to add-on instead of modify
- Save development time overall
- We can port our server code to the new system

Work Delegation

Kyle

Adding on to Master-PC codebase and setting up new Pi

Logan

Adding on to Master-PC codebase

Austin

Unreal Engine GUI Work

Timeline

Friday, December 15, 2017	Implement client-server architecture
Friday, December 15, 2017	Hardware test
TBD	Full system integration and flight test
TBD	Polishing/stretch goals

Client-Server Architecture – Accomplished

- Looping thread listening for new user connections
- Drone and User Cataloging
- Multi-User Updating

Hardware Test – Incomplete

- Ideally, test system with two Pi's connected
- Recently set up a new Pi-Zero to act as the second drone
- Did not finish the hardware test
- But... nothing breaks when using one drone (this is a good sign)

GUI and Unreal Engine Work – Incomplete

- Animation sequence and class functions
- Editing the LeapControllerCameraBP by adding functionality and assets
- Taking some time to understand how Unreal Engine 4 works
- Creating keyboard and mouse input switch functions

GUI and Unreal Engine Work – Incomplete

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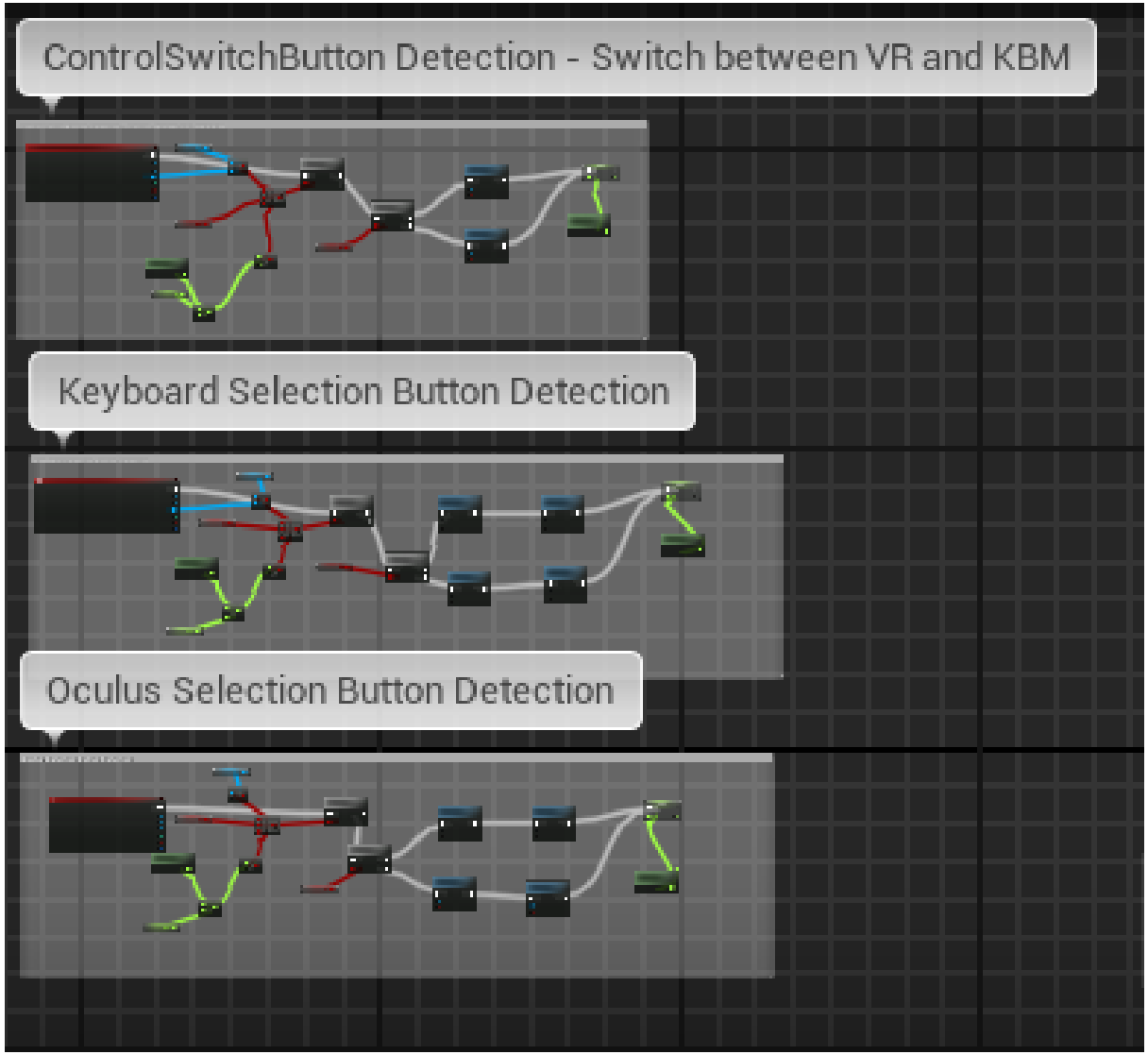
GUI and Unreal Engine Work – Incomplete



Timeline

Friday, December 15, 2017	Implement client-server architecture
Winter-Break	Hardware test
TBD	Full system integration and flight test
TBD	Polishing/stretch goals

Thank You

Questions? Suggestions?