Drone Programming

Concept

Develop an HTC Vive VR application for learning how to program by programming a drone.

Preliminary Prototype Goals

1. Develop a programmable drone environment for learning sequences.
    a. User interfaces for entering and exiting environment from a main menu.
    b. Visually appealing, 3D grid-based environment and objects.
    c. Ability to place basic programming blocks anywhere in the grid: Move Forward, Move Up, Move Down, Turn Left, Turn Right, Pick Up Target, Drop Target.
    d. Ability to start, pause, and stop program execution.
    e. Programming environment that requires use of all the basic blocks to move to pick up a target and move it to a goal.

2. Develop a programmable drone environment for learning conditionals.
    a. User interfaces for entering and exiting environment from a main menu.
    b. Visually appealing, 3D grid-based environment and objects.
    c. Ability to place conditional programming blocks anywhere in the grid:
    If Target Blue, If Target Red, If Target Green, If Goal Below.
    d. Ability to start, pause, and stop program execution.
    e. Programming environment that requires use of all basic and conditional blocks to move a randomly colored target to its corresponding goal, if it exists out of multiple randomly colored goals, or moving it to a non-colored goal.

Final Prototype Goal

1. Develop a programmable drone environment for learning iteration.
    a. User interfaces for entering and exiting the environment from a main menu.
    b. Visually appealing, 3D grid-based environment and objects.
    c. Ability to place iterative programming blocks anywhere in the grid:
    Define Start, Go To Start, X=0, X++, If X<5
    d. Ability to start, pause, and stop program execution.
    e. Programming environment that requires use of all iterative programming blocks to move a reappearing target to a goal five times.

Stretch Prototype Goal

1. Create a high-quality video that showcases all the features of the application from the user's perspective and includes a picture-in-picture view of the user using the HTC Vive.

These descriptions are subject to change at the discretion of the instructor.