Nerf Firing Milestone Report

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I. Introduction

THE short paragraph that is supposed to describe project vision and content. Highlight differences we've made since the project charter.

II. Project Requirements

Based off concerns in the presentation, list out explicit minimum requirements.

III. System Components

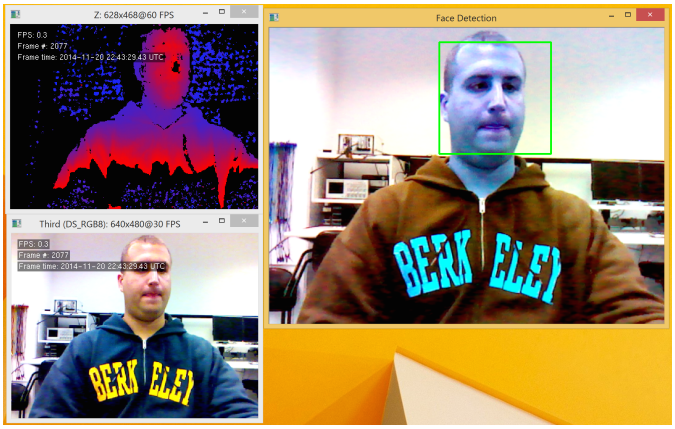
Description of the various components (see next sections) + figure showing how they connect.

IV. NERF Gun Turret

Updates on the NERF gun and the turret + figure showing the nerf gun

V. Face Recognition

We have decided to use an Intel RealSense 3D Camera to handle face recognition. This camera was chosen since it has a small form factor and provides RGBD information at 30 frames per second. A limitation of this camera is that it must be connected to a Windows 8 computer via USB3, but it only came with a short cable. To get around this limitation, we ordered a 2m USB3 extension cable. On the software side, we have C++ code that reads from the camera and uses OpenCV to detect faces. We are still working on creating a connection from this computer to the micro controller so that we can move the turret based off of a face's position in space. Below shows (counter clock-wise from bottom left) input put image, face detected image, and depth image.



VI. Controller

Updates on the controller for the turret + figure showing state diagram

VII. Communication

Updates on various types of communication methods between camera + controller.

VIII. Future Plans

Future stuff