

Augmented Reality Fruit Ninja™

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Abstract

This project is inspired by Fruit Ninja™, a video game in which fruit appears on a touchscreen and a user must swipe across the fruit to cut it in half before it hits the bottom of the screen. We propose to implement augmented-reality Fruit Ninja™ on the FPGA labkit, using a VGA camera to track the user's gloved hands which will act as the controller for the game. We will display a dimmed and slightly blurred version of the the live input feed underneath our game overlay, which includes pieces of "fruit" that the users must "cut" by waving their hands. The users will wear colored gloves to facilitate hand tracking. As time allows, we will implement more advanced graphics, sound and physics for the game to create a more immersive user experience. This project will require the standard 6.111 labkit, as well as a VGA camera and colored gloves. The basic functionality is that the FPGA calculates whether a fruit is "cut" by comparing the locations of the users' hands to that of the flying fruit, and updating the game according to whether the fruit is cut or not.