

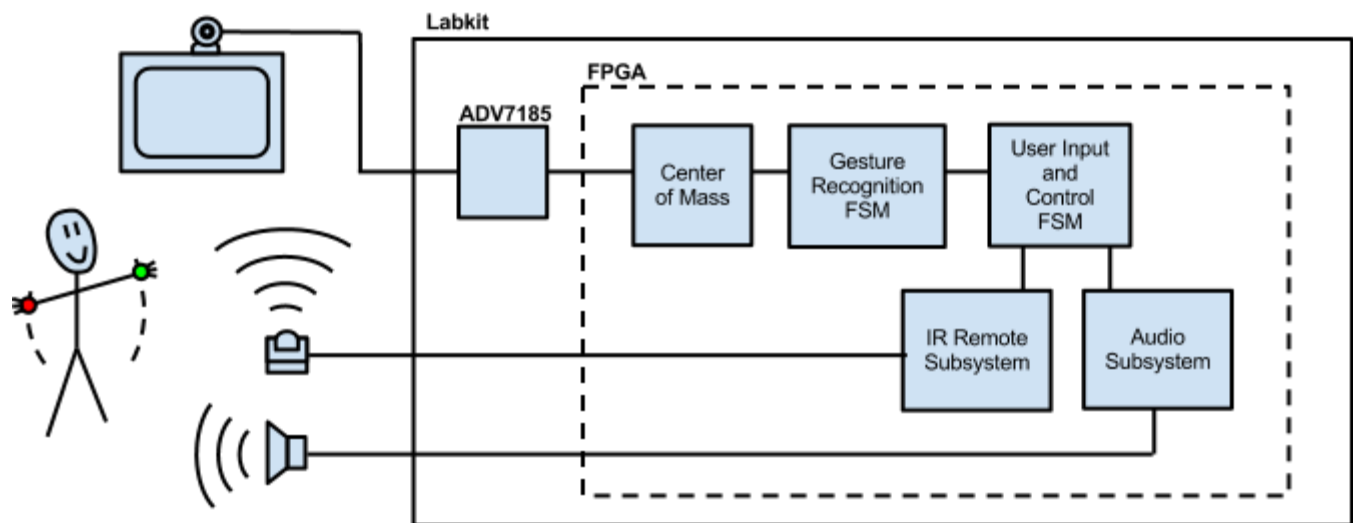
Gestural Remote Control Using FPGA

Abstract

Universal remote controls are usually large and unintuitive devices. While appealing to the more technology savvy users, most individuals would probably enjoy a less clunky and mind-taxing interface. We propose the development of a gestural interface to control infrared-enabled devices with simple hand movements.

In the proposed system, the user's hands are identified by unique colors (probably by wearing red and green gloves). The X and Y coordinates of each hand's center of mass are calculated, and fed into a gesture recognition state machine. This FSM classifies the hand movements into a set of predefined gestures, which trigger a corresponding infrared command and play an audio signal to provide feedback to the user.

For the scope of this project, we will probably control a TV set and work with a predefined number of gestures. However, the proposed design could be generalized to operate with multiple devices and a larger number of hand movements.



Who's Doing What

System Block	Team Member
YCrCb to RGB	Vladimir
Center of Mass	Vladimir
Gesture Recognition FSM	Ricardo
User Input and Control FSM	Ricardo
IR Remote Subsystem	Andres
Audio Subsystem	Andres