FPS Interactive Whiteboard

A proposed Capstone Project presented by:
Fajardo X., Paman J., Parayno J. ,and Siy K. (2016).

Introduction

- Project improvement from "Interactive Whiteboard using Raspberry Pi"

- An Interactive learning environment

- Kinect Sensor

Objectives

- To develop a motion and color tracking system with the use of a Kinect sensor and LED pens.

- To develop an accurate and precise motion tracking for the system in which will be tested on drawing applications.

- To develop a usable project that will work to a typical lighted classroom environment.

- To recognize another user input that will not interfere to the other, which aims to provide a multi-user

Scope and Limitations

Scope

- Simple educational, drawing applications, PPT and videos

- Cursor movement will react according to the arm movement of the users

- Cursor behavior will react according to the color input of the LED pens.

Limitations

- Motion tracking will cover only x (width) and y (height) movements only.

- Only 6 colors

- Kinect Depth Sensor Range: 0.8m – 4m

- Kinect Viewing Angle
  - 43° vertical
  - 57° horizontal

Process Diagram
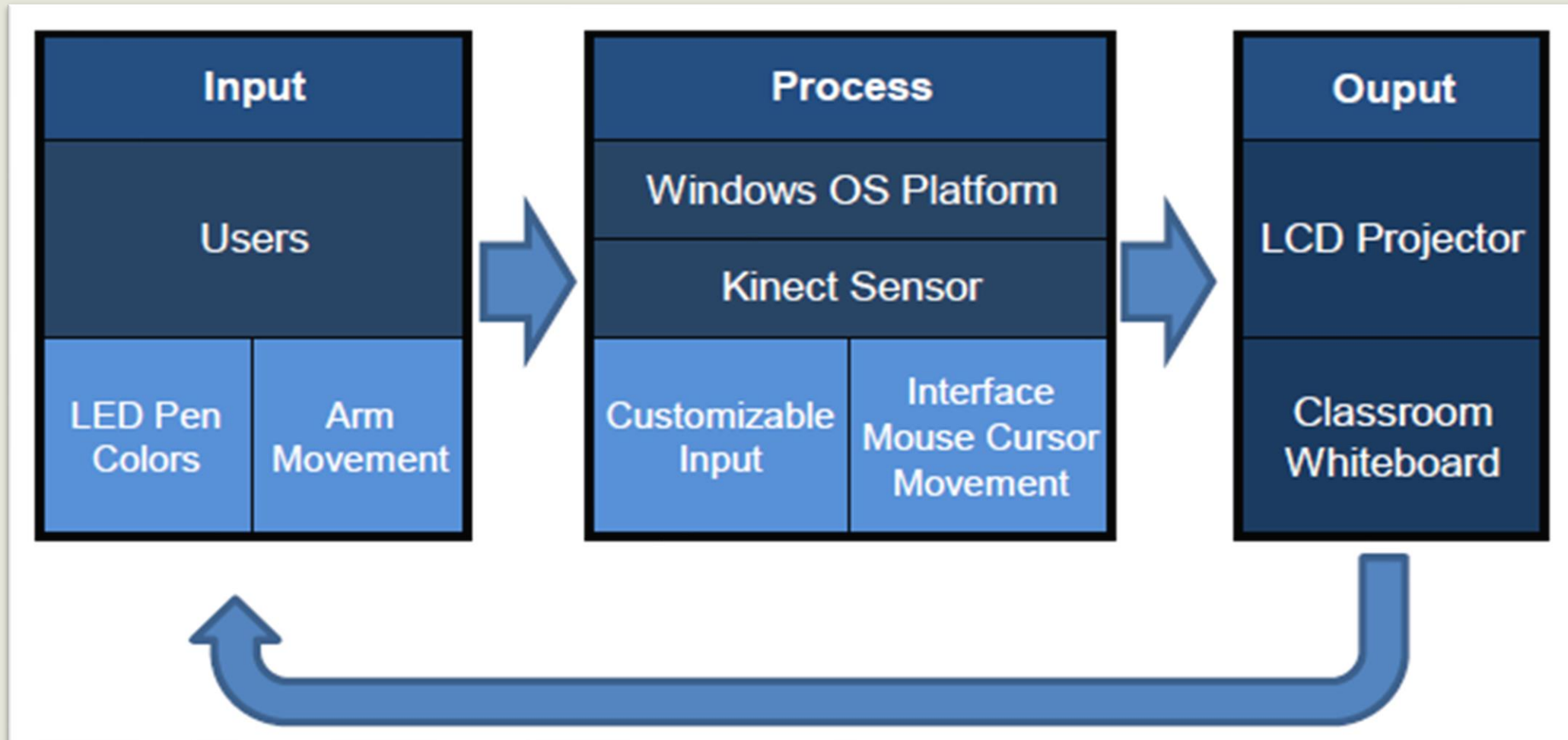
Requirements Analysis

Components Used

- Customized RGB LED Pens
  - User 1: Red, Green, Blue
  - User 2: Cyan, Yellow, Magenta

- Kinect Sensor
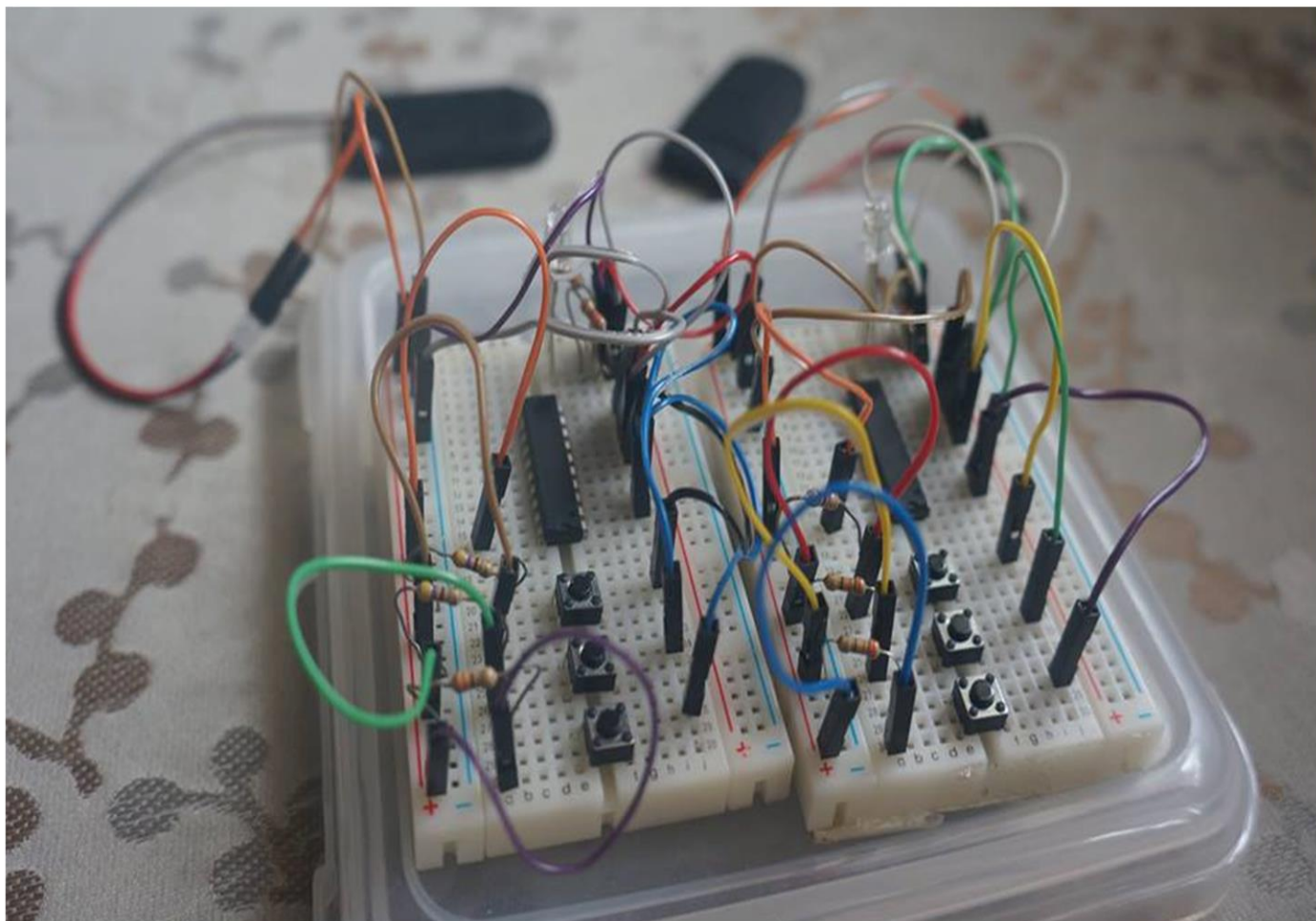
- Windows PC / Laptop

Technologies to be used:

- Programming Language: C++

- OpenCV – open source computer vision library

- OpenNI – open source neutral interaction
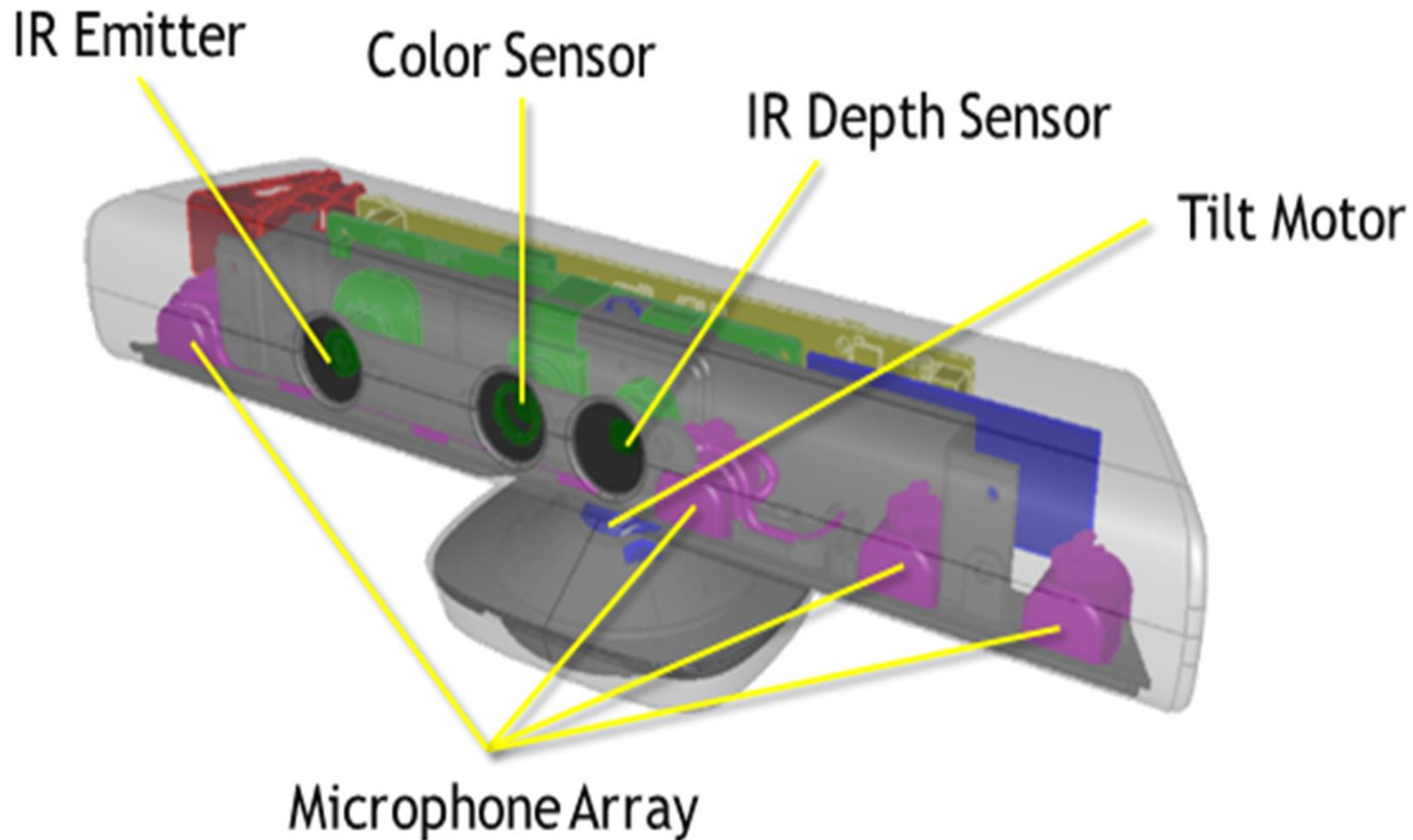
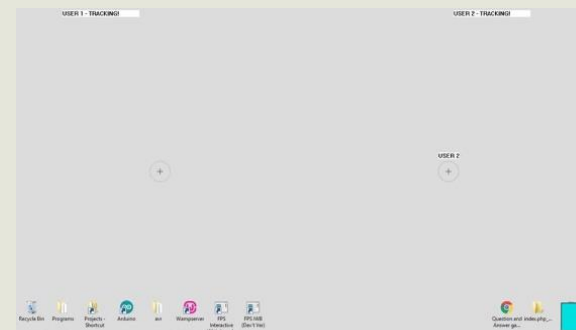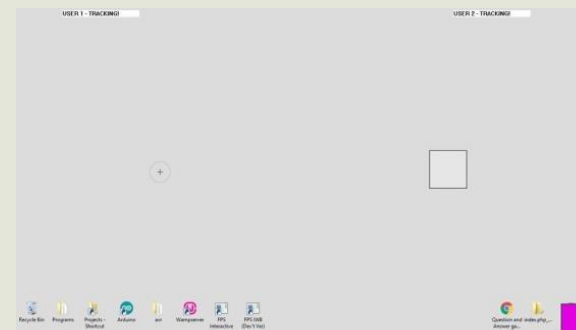- NiTE – Natural Interaction Technology for End-user

Project implementation Diagram
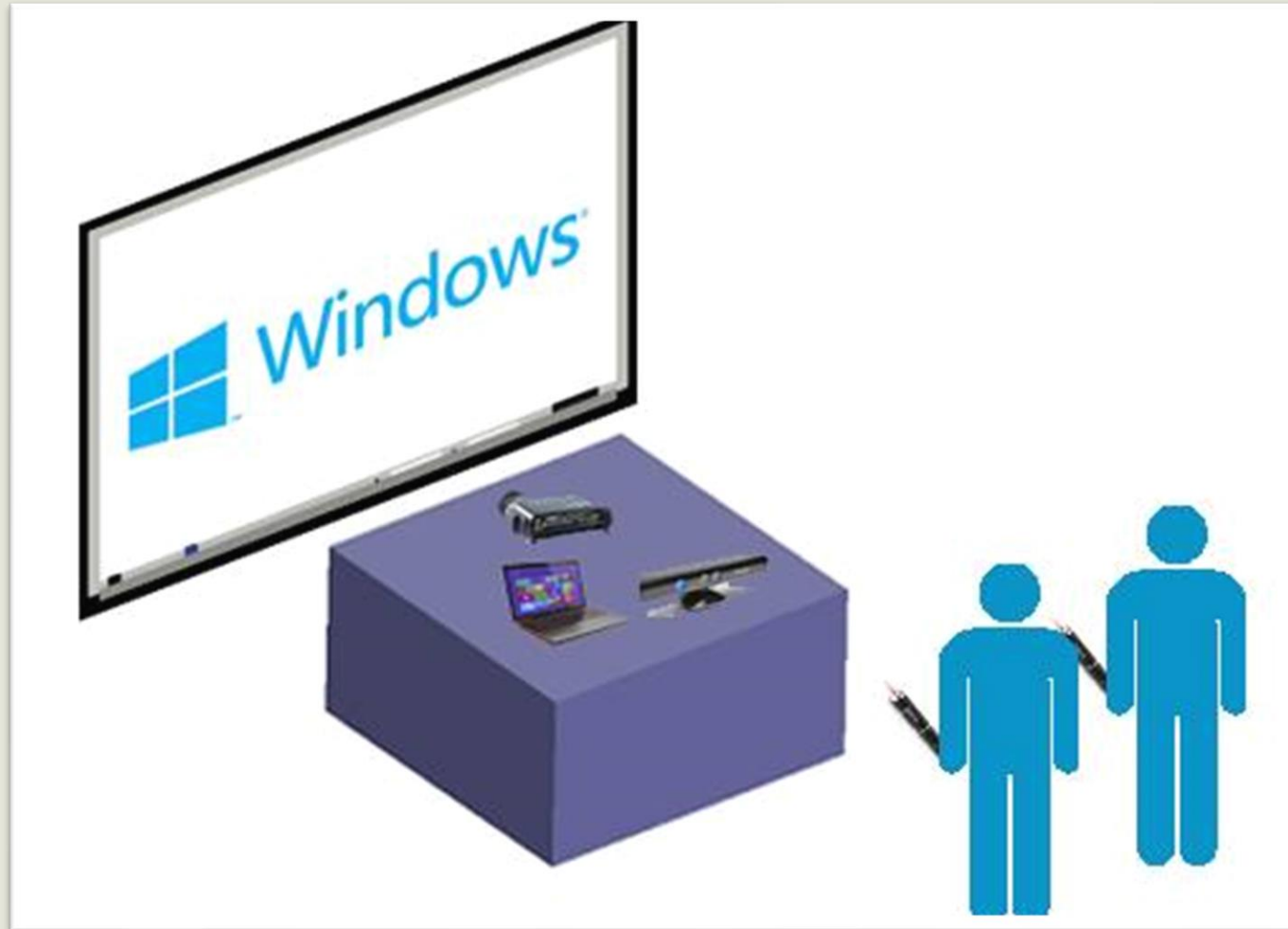
LED Pens

Kinect Sensor and Adapter

Testing

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