EE / CprE / SE 491 – sdmay19-01

Athlete Motion Tracking

Week 10 Report

11/29/18 – 12/6/18
Client: Nathan Johnson
Faculty Advisor: Craig Rupp

Team Members:

Nathan Mazarelo –– *Weekly Reporter/Software Developer*
Monte Friestad –– *Spokesperson/Software Developer*
Madeline Rogers –– *Meeting Facilitator/Hardware* Maintainer
Ryan Hansen – *Scribe/Hardware Maintainer*

Weekly Summary

This week our team got the OmniVision camera to replace the Kinects. We began testing with an alternative motion tracking program, adjusted processing in the analysis program, and created a new design sketch of the web application. The final presentation slides were finished, and the presentation was given.

Past Week Accomplishments

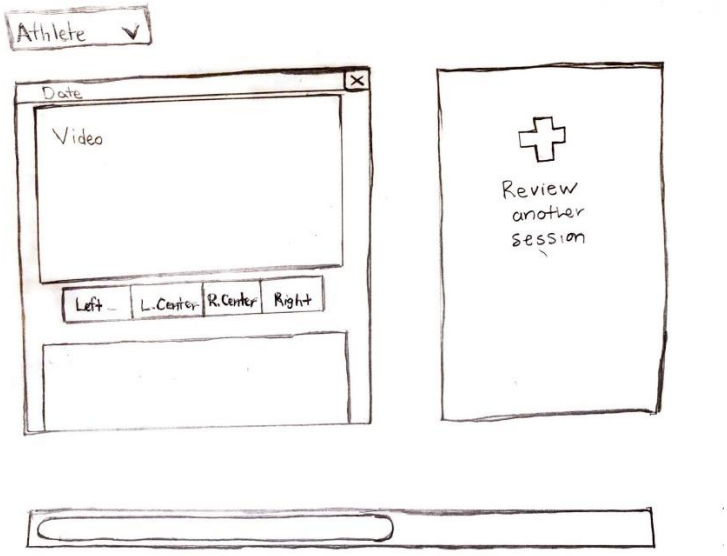
- Started using new OmniVision camera and explored new software options – Ryan
    - OmniVision Ov4689 Camera Sensor
        - New camera to replace the Kinects
            - Records HD video up to 180 fps
            - The camera high frame rate enables crisp, clean image and video capture for fast moving objects
    - Kinovea Software interaction
        - Began testing the OmniVision camera with Kinovea software
        - Kinovea is an open source motion tracking program
            - User interface and data export is easier to understand then the ipi software
    - Presentation Slides
        - Worked on system design slides

- Worked on camera enclosure designs and outlined final presentation slides – Maddie
    - Camera enclosures
        - Began designing different enclosures that could be used to hold the new OmniVision cameras

        - The cameras will require a fan for cooling, so the enclosures will need to hold both the fan and camera
    - Presentation Slides
        - Wrote the outline for the presentation slides based on the guidelines and rubric

- Researched Pyqtgraph as alternative plotter and fixed processing in analysis program – Nathan
    - Pyqtgraph
        - Figures, axes, and plots have manipulatable handles
            - Good for modular design where individual features may need to be tweaked or updated
        - Provides fast, interactive graphics for displaying data
            - Fast enough for real time update of video/plot data
    - Analysis program
        - Fixed processing bugs causing previous motion points to disappear
    - Presentations slides
        - Worked on software tools slides for presentation.

- Created a sketch of web application and worked on slides for the final presentation - Monte
    - Design sketch
        - The sketch displays the location of the data, video recordings, and past sessions
            - Buttons under the video window allow the user to select which cameras they want to view the recording from
            - Past sessions can be compared in a side by side view



    - Presentation slides
        - Worked on user interface and test plan slides for presentation

Individual Contributions

Team Member	Contribution	Weekly Hours	Total Hours
Ryan Hansen	Started using new OmniVision camera and explored an alternate motion tracking software called Kinovea. Worked on system design slides.	8	68
Madeline Rogers	Worked on camera enclosure designs to hold the OmniVision cameras and possible fans. Created the outline for the final presentation slides.	8	71
Nathan Mazarelo	Researched Pyqtgraph as alternative plotter and fixed processing in analysis program. Worked on software/technology slides.	8	70
Monte Friestad	Created a sketch of web application with included functionality for multiples sessions and data. Worked on user interface and test plan slides.	8	68

Plans for Coming Week

- Ryan
  - Try to get the Kinovea software working with the new cameras and extract the data
  - Compare advantages of Kinovea to ipi software
- Maddie
  - Continue research on possible cases to enclose the OmniVision cameras and fans
- Nathan
  - Get excel data from new cameras and start testing analysis program with the Kinovea software for possible compatibility
- Monte
  - Implement the new session and data functionalities from the design sketch of the web application