Project Title:

**<Multi Modal Interactive Paint>**

Student Members:

**Andrew Mitchell**

**Garrett Lemieux**

**...**

Product Owners:

**Francisco R. Ortega**

Mentors:

**Francisco R. Ortega**

Instructor:

**Masoud Sadjadi**

**Sprint Retrospective 1**

Date: 1/31/2016

Attendees:Garrett, Andrew, Francisco Ortega

Start time:9:00

End time:9:20

What went wrong?

* Did we do a good job estimating our team's velocity?
  + No. We only did 20 points.
* Did we do a good job estimating the points (time required) for each user story?
  + After setting up libcinder and getting our first user story completed we estimated the other user story fairly well, but still not great.
* Did each team member work as scheduled?
  + Yes we worked as scheduled, including over time!
  + We had a small hiccup for our sprint planning meetings, started later than planned.
* Magnum
  + Failed as a good development environment.
  + Spent many hours working on compiling
  + Spent even more hours trying to get working samples
  + Spent some time on working examples.
  + Eventually it was scrapped for libcinder.

What went right?

* After switching to libcinder our velocity skyrocketed. After looking at a few examples we managed to get our user stories completed in a great amount of time.
* We did learn a lot about C++ and the various devices from Professor Ortega and online videos.
* Great communication between product owner and developers.
* All team members are working hard and on time, very easy to get a hold of.

How to address the issues in the next sprint?

* How to improve the process?
  + Sprint planning with real user stories from day 1.
  + Already have a dev environment set in stone (no magnum, switched to lib cinder), so it should be easier to develop user stories.
  + Point Estimation - Longer Sprint planning II and doing it properly with correct user stories.
* How to improve the product?
  + Smooth the larger lines.
  + Implement LeapMotion Device.

**Sprint Retrospective 2**

Date: 02/14/2016

Attendees:Garrett, Andrew, Francisco Ortega

Start time:7:30

End time:7:45

What went wrong?

* Did we do a good job estimating our team's velocity?
  + Estimations were fairly accurate, but, Sunday, the last day of the sprint, we spent a little more time than anticipated finishing our work before the meeting.
* Did we do a good job estimating the points (time required) for each user story?
  + Andrew - Underestimated the line smooth functionality. Took a bit longer than anticipated.
  + Garrett - Underestimated drawing a smooth line. Took extra time fixing performance issue.
* Did each team member work as scheduled?
  + Yes!
* Design philosophy meeting got pushed back.
* Performance issues with drawing lines (multitouch).
* EyeX is not as precise as previously thought.
* Worked separately on different devices.

What went right?

* Got the devices to work.
* Got our user stories completed.
* Product owner was impressed by how much we got done.

How to address the issues in the next sprint?

* How to improve the process?
  + More meetings between Garrett and Andrew to structure the code better for the multiple devices
* How to improve the product?
  + Need to improve performance issues (Andrew)
  + Implement a good user Interface.
  + Implement Shape Inheritance

**Sprint Retrospective 3**

Date: 02/27/2016

Attendees:Garrett, Andrew

Start time:10:55

End time: 11:15

What went wrong?

* Did we do a good job estimating our team's velocity?
  + We got everything done, maybe have worked a bit extra to account for unexpected meetings.
* Did we do a good job estimating the points (time required) for each user story?
  + Feedback implementation took a bit longer than anticipated.
* Did each team member work as scheduled?
  + We had a few hiccups the days where we had meetings. We worked later a lot later in the day when the meetings got pushed back.
  + Sprint review got slightly postponed.

What went right?

* Code integration went well.
* Finally learned a few core components of framebuffers which will surely help in the following sprints.
* Much better time estimations.
* Git integration is a lot more smooth now.

How to address the issues in the next sprint?

* How to improve the process?
  + Try to get all our meetings scheduled ahead of time. They need to be at least known at the start of the sprint, even if the schedule is slightly malleable.
  + Should have design meetings in previous sprints.
* How to improve the product?
  + Implement alpha shading to our shape colors.
  + Get icons for our buttons and feedback popups.
  + Improve device status so it can be dynamic (currently only leap is dynamic)
  + Turn off gestures while drawing with leap.
  + Add UI for Layering
  + Implement ‘Modes’ for using specific devices a certain way.

**Sprint Retrospective 4**

Date: 3/13/2016

Attendees:Garrett, Andrew

Start time: 9:40

End time:9:55

What went wrong?

* Did we do a good job estimating our team's velocity?
  + Yes
* Did we do a good job estimating the points (time required) for each user story?
  + Yes.
  + LibUSB provided a couple of unsuspecting hiccups. Won’t be our end all be all solution.
* Did each team member work as scheduled?
  + Yes.
* Lib USB caused a lot of performance issues.

What went right?

* Our presentations went well
* Completed all of our user stories on time, even with the event of our checkpoint I

How to address the issues in the next sprint?

* How to improve the process?
  + Try to find a way to better communicate with the OpenHID Lab.
  + Continuously refactor code.
    - Ensure code is as separate as possible
    - This should be an ongoing process.
* How to improve the product?
  + Refactor / Separate out code.
  + Draw shapes with leap motion.
  + Gamification elements for kids?
  + Add RealSense Device.
  + Continue searching for good ‘device detection’ paths.
  + Interactive UI for Leap Motion
  + Continue working on the user guide.
  + Improve LIBUSB Performance Issues.

**Sprint Retrospective 5**

Date: 4/2/2016

Attendees:Garrett, Andrew, Francisco Ortega

Start time: 2:20 PM

End time: 2:55 PM

What went wrong?

* Did we do a good job estimating our team's velocity?
  + Yes, some slight overtime due handling new device.
* Did we do a good job estimating the points (time required) for each user story?
  + Fairly well.
    - User Story 670 Implement Undo Button took a bit longer than expected.
    - Some overtime with setting up real sense.
* Did each team member work as scheduled?
  + Yes.
* Again the product owner had to push back the meeting despite sending out a message and Gmail meeting early in the sprint. The product owner did get sick however, so this may have been the cause for the postponement. Hopefully it doesn’t continue to happen.

What went right?

* We finished everything on time despite some very interesting bugs that popped up (With some slight overtime)
* We Integrated a new device into the program (Intel RealSense Camera)
* Cleaned up how devices are handled.

How to address the issues in the next sprint?

* How to improve the process?
  + We should write the User Guide before writing the code (So we know what exactly the user should experience). We should update it after completion still to ensure that it turned out as planned.
* How to improve the product?
  + Continue working on the user guide.
  + Improve LIBUSB Performance Issues (Add Chrono).
  + Better Icons for Buttons
  + Improve how UI is drawn (performance wise) - Low priority.
  + RealSense - Additional Functionality
  + Program Startup Display Image

**Sprint Retrospective 6**

Date: 4/17/2016

Attendees:Garrett, Andrew, Francisco Ortega

Start time:10:55

End time: 11:10

What went wrong?

* Did we do a good job estimating our team's velocity?
  + Yes. We estimated perfectly this time. We finished on time.
* Did we do a good job estimating the points (time required) for each user story?
  + Yes. All went about the correct time.
* Did each team member work as scheduled?
  + Yes.
* Again the product owner had to push back the meeting due to being out of town this week. Had to postpone to Saturday.

What went right?

* We finished everything on time (no real overtime except a video the product owner wanted us to do).
* Added more functionality for new real sense device.
* Improved performance dramatically by reducing the amount of device checks.

How to address the issues in the next sprint?

* How to improve the process?
  + We should change our sprint review schedule because the product owner seems to have problems arriving on fridays.
* How to improve the product?
  + Continue working on the user guide.
  + Better Icons for Buttons (found Icons, need to implement them now).
  + Improve how UI is drawn (performance wise, draw into frame buffers once) - Low priority.
  + Program Startup Display Image
  + Refactor some more code
    - Leap Motion and EyeX out of Touch Points
    - Ensure that ‘Update’ does all the updates and ‘Draw’ does our ui and canvas drawing.
  + Real Sense ‘Asynchronous’ Implementation (May improve real sense performance).
  + Buffer Multitouch input.

**Sprint Retrospective 7**

Date: 5/1/2016

Attendees:Garrett, Andrew, Francisco Ortega

Start time:12:10

End time: 12:45

What went wrong?

* Did we do a good job estimating our team's velocity?
  + Yes. We managed to finish our tasks early and had enough time to finish touching up our user guides as well as old documentation.
* Did we do a good job estimating the points (time required) for each user story?
  + Yes.
* Did each team member work as scheduled?
  + Yes.
* This sprint we decided to set the EoS Meetings to sunday at noon. This means we didn’t wait up friday for our product owner because he is normally available sundays. Worked much better!

What went right?

* Setting up the meeting on sunday.
* Our Testing was good. Retesting old features, most of them seemed to work as intended but we did find a few bugs that we managed to fix.
* New documentation is looking good!

How to address the issues in the next sprint?

* How to improve the process?
  + Continue to change day for our EoS Meetings.
  + Do documentation right the first time!
* How to improve the product?
  + Refactor more code. Move Leap Motion, EyeX, and Multitouch out of TouchPointsapp.
  + Buffer Multitouch Input.
  + Implement Threading
  + Gamification elements added into a tutorial system.
  + How to improve it for multi modal ouputs (iPad, VR, etc).
  + Speach recognition
  + Active Pen.