**APSC 496 – Preliminary Client Meeting**

Q&A with Chris Plaskos

1. **What is your end goal for this project?**

Chris was unclear as to how the last project left off. He has seen the prototype but does not know what has been left to do with the end result, nor has he seen it in action. Tony clarified the following for Mr Plaskos:

* the 2008-2009 team has accomplished their final thoughts on bringing the instrument into the realm of 3D operation
* the 2008-2009 team has only qualitatively evaluated their prototype’s performance, but not quantified it. Therefore, it is unclear how much better this prototype is at achieving the project’s goal than Nikolai’s was
* the existing prototype is regarded as being “mechanically rough”

Mr Plaskos then identified his two primary issues with the existing Praxim prototype, which are:

* the size is too large, and the instrument is overall too heavy to be mounted on a person’s bone
* the instrument was not designed with sterilization in mind, and as it exists right now, it likely cannot be properly sterilized

1. **Do you have any known user complaints/issues/suggestions with the existing prototype?**

There currently exists an issues with lateral displacement. When the boundary-line is approached at certain areas within the instrument’s functional reach, the robot pushes the tip of the cutting tool away. This is potentially hazardous, and mitigation options should be examined

1. **What are we designing for? Proof of Concept? Production?**

The end goal of the project should be to have a project ready for cadaver testing

1. **What is the benefit of curvilinear cuts vs planar cuts (shortened time in OR, increase in implant life, better implant alignment, etc)?**

This functionality would allow the instrument to be much more usable from a surgical perspective. Implants are 3-dimensional, so having the device also be 3D functional is a better option. The current prototype is considered a ‘hybrid’ 3D version; Nikolai proved that the concept works in 2D, but 3D hasn’t been fully, functionally achieved just yet.

From a surgeon’s perspective, the device cannot be used to complete a surgery if it only has 2D functionality, so in order for this design to be effective, it must extend to 3D.

The curvilinear/3D capabilities *will* in fact help to save time in the OR (and subsequently money), as the operator does not spend extra time moving blocks/planes. It is also more time-efficient than a manual instrument; the prototype currently saves roughly 8 minutes, compared to the navigated tool used with manual blocks

1. **How do you feel about the current model’s size?**

A smaller, more compact and lightweight model is far more ideal

1. **How many units do you expect to manufacture in the end?**

In terms of prototypes, we are only designing for 1-offs. In the manufacturing stage, initially will only manufacture approximately 10 at one time

1. **How are you expecting to market this product (aimed only toward highly-funded hospitals, aimed to enable smaller and less funded facilities, or aimed only at specialists)?**

Aiming for a market of high-volume arthroplasty facilities, not a community hospital that would only perform 1-2 surgeries per month.

1. **What kind of standards (ISO, CSA) does the product need to meet?**

There are many standards that the end product will need to meet. Early prototyping, however, doesn’t require us to look into too much detail. There are some documents that can be found regarding cleaning and sterilization, and that might be worth looking into.

**Further Notes:**

* We initially just want to have a prototype running to quantify the performance of the device, work out the bugs, etc
* Mr Plaskos did not really seem concerned with the manufacturing issues, but we should look into some of these nonetheless
* We shouldn’t worry too much about inputting 3D models into our device, but instead ensure only that our device can accept these models in the end
* We also need to consider the user: Will surgeons *like* using our design?
  + The surgeon’s input was never previously considered quantitatively (force analysis)
* Mr Plaskos would like to be able to see a video of the current device when it is up and running
* Getting a Gantt chart up and online will be beneficial to our team and Praxim so that we can work together to meet the pending milestones
* We’d like to look into asking Mr Plaskos if we can have a knee mount and a solid model of the mount, to aid us in our design