

Meeting Purpose:

To review the progress of P15001 during the final MSD I phase and to determine areas for improvement going into MSD II

Materials Reviewed:

Project 15001 Gate Review EDGE site

Attendees:

Adam Podolec:	Electrical Engineer / Project Lead
Megan Ehrhart:	Senior Electrical Engineer
Jared Green:	Senior Mechanical Engineer
Tyler Leichtenberger:	Mechanical Engineer
Noah Schadt:	Mechanical Engineer / Team Facilitator
Geni Giannotti:	Biomedical Engineer / Treasurer
Ed Hanzlik:	MSD Guide
Dr. Beth DeBartolo:	Customer Visitors

Recorded by: Noah Schadt: Mechanical Engineer / Team Facilitator

Noah Schadt (signature)

Meeting Date: 12/9/2014

Previous Open Action Items:

Action Items					
Item #	Description	Responsible	Due Date	Close Date	Comments
CM01	Develop a Working Model with sensitivity analysis	Noah/Tyler	MSD II wk2	IP	In MechE labs
CM02	Consider easy plantar flexion release	Tyler	MSDII	IP	Manual support too?

Issues					
Item #	Description	Responsible	Open Date	Close Date	Comments
I001	The AFO could be slippery with socks	Geni	10/23	IP	Relates to A009

Discussion (describe any relevant discussions not captured in actions / issues / decisions tables):

- Guide/Customer/Guest
 - Team P15001
- IRB Permissions

- Where is the switch?
 - *Shown on the build assembly debug plan*
- I don't see the switch on the system architecture
 - *It was not necessary to put the switch on the system architecture*
- Guide: want a complete system
- Where are my alert systems?
 - *The sound device will be inside the upper component housing and will notify the user through the box. The LED will be inside the box as well and will help the user with troubleshooting once the alarm gets their attention.*
- What is being powered in the backpack?
 - *Microcontroller – which will monitor conditions and activate other components*
- Lead time on BOM materials
 - *No great need for tracking lead times besides PCB which is scheduled to be ordered next week 12/15/14*
- PCB test plans for MSD II?
 - *Smoke test & other tests mentioned*
- Is debug solution on the PCB common practice? It seems like a good idea
 - *Yes it is fairly common practice*
- - *Muscle articulation is new on the plots for this phase*
- What can I retrieve from PCB (SD card)?
 - *Data from the plots, the plan is to have it start recording a new time-stamped data sequence every time it is activated. Once 99 files are reached it will start again.*
- Technical question about sampling and averaging
 - *Addressed by EE Lead*
- Guide loves timing diagrams
 - *Timing diagram presented*
- You could 3D print a standoff for the lower component housing since you don't want the PCB to sit right on the bottom of the plastic.
 - *Taken as action item A001*
- How are you going to handle the fasteners for the 3D printed board? Thread cutting screw? The problem with those is that you can't reuse them for long. The holes may need to be larger and threaded anchors may need to be permanently set in the plastic so that machine screw may be used indefinitely. Was it even a concern?
 - *Yes it was a small concern, taken as action item A002*
- Is the height as small as possible (3D housing)?
 - *The height was based off of the requirements for the IR sensor*
- Cut the front end of the lower plug for ease to ?
 - *Team is planning on machining the lower plug themselves so functionality requirements will be considered while machining.*
- Failure mechanism, abrasion on muscle, was that a concern? It is helpful to know what will fail first, high frequency – sensor failure – repeatability, Guide is acquainted with muscles and recounted how one MSD group burst tested a muscle in a solid tubing shell
 - *Failure mechanism addressed in Action item A003*
- If we have ourselves a fish will we go to the conference?
 - *We hope so*
- Imagine RIT: to our guide it is as predictable as rain that we will have a working prototype. What will you when people ask how to get one?
 - *We have a 3 pronged approach*

- *Make it clear that this is not a replacement for medical treatment*
- *Distribute a hand out with a GAD drawing and a link to a document that contains the necessary components for building an Active AFO*
- *Print a QR code on the poster with an appropriate link*
- Imagine RIT: we have applied for a grant about this project and depending on what happens you may be able to ask people if they would be interested in participating in further research from the grant money. We will know by Imagine RIT if we have the grant or not.
- You will hook some fish
- Intellectual property – there already has been a patent application out there for the terrain sensing with this project as a possible use, we should put that on our poster
 - *See Action Item A004*
- Intellectual property – customer saw a video of an industrial design student who made an AFO with air muscles so that would not be our intellectual property.
- Problem solving – we’ll talk more in MSD II about problem tracking spreadsheet
- Avoid sharp corners in Mechanical prototypes
 - *Sharp edged and properly fillited designs were considered, but it was not efficient for us to spend excessive time on preparing CAD drawings easy for machining since we plan to machine the parts ourselves and we can make executive decisions based on functionality requirements plus we also plan on sanding sharp edges*
- Abstract review – They (ASME) are pretty clear about their judging criteria, I think is posted, if not you can find the abstract judging criteria from last year for sure and it probably has not changed. The top 6 teams go out of 30-40 teams. The previous untethered AFO team went.
- AutoDesk 123 Sculpt is a resource that could be helpful; you can start with a foot
 - *See Action Item A005*
- Geneseo business project follow up
 - *Adam plans on attending at least some of the events*

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CM01	Develop a Working Model with sensitivity analysis	Geni/Jared	Wk2	IP	In MechE labs
CM02	Consider easy plantar flexion release	Tyler	Wk5	IP	Manual support too?
A001	3D printed PCB standoff redesign	Jared/Tyler	Wk2		Lower component housing
A002	Redesign fasteners for 3D printed part	Jared/Tyler	Wk2		Machine screw anchors?
A003	Address expected failure mechanism	Noah/Tyler	Wk5		Muscle abrasion / risk list
A004	Update Imagine vision, add patent #	Geni	Wk2		Add Patent # to poster
A005	Research AutoDesk 123D Sculpt	ME/GG/TL	Wk2		Free download for I-Pad

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