Shared Vision for MSD II- P14045

I.) <u>What did we say we were going to do?</u>

Group Plan:

1. ME
    a. Finish design mock ups
        i. hinge for tray system
    b. Finish cad files
2. EE
    a. Complete Electrical Schematic!
    b. Finalize component selection
    c. Learn to Program.
3. Prep for DDR (on Dec 5 th)
    a. Eng reqs address
    b. Risk mitigation deployed
    c. Feasibility of critical areas
        i. 3D Print vs Actual Part
        ii. Demonstration of Tray
        iii. Demonstration of Battery box
    d. BOM- Needs to be revisited
        i. Accordion cover
        ii. Material for box
    e. Readiness to spend money
4. Develop Test Plan
    a. Rev 1 complete, addresses all reqs, equipment and procedure defined, traceable to engineering requirements
5. Risk assessment, mitigation plans and triggers
6. Prep for Gate Review
    a. MSD II plan (Rev 1, with project-specific detail)
    b. Reqs complete from MSD 1
    c. Meet customer reqs and approval
    d. Meeting notes must be captured/items for resolution

JD :

1. Complete schematic of electrical system
2. Choose a power supply component
3. Decide new scope of project
4. test PWM output and input

Alex:

1. Need to contact R82 (stander manufacturer) and see if I can get

replacements of OEM adapters (hopefully for free!).

2. Determine what tests R82 runs for dropping.
3. Confirm FEA/hand calc results with Dr. Boedo.
4. Investigate impact times using the accelerometer Emily acquired.
5. Update/complete analysis if necessary based on #2 and #3.
6. Keep assisting with Tray/Packaging design.

MV:

1. Work closely with JD to accomplish all of the EE goals.

GR:

1. Further develop Solidworks Model
2. Further develop tipping analysis
3. BOM
4. Prep for DDR
    a. Update Eng requirements
    b. Update Risk assessment
5. Prep for Gate Review
    a. Develop testing plan
6. Assist in Tray Analysis

EC:

1. Support/continue solidworks modeling of the packaging
2. meet with packaging folks to determine optimal material
3. Assist with the DDR and gate review prep things

II.) <u>What did we actually did do?</u>

Group:

1. finished the mock ups
2. developed idea to lock tray's horizontal movement

GR:

1. Further developed Solidworks Model
2. Completed tipping analysis
3. Worked on BOM
4. Prepped for DDR
    a. Update Eng requirements
    b. Update Risk assessment
5. Prepped for Gate Review
    a. Preliminary development of test plan
6. Assisted in Tray Analysis

Alex:

1. Sent a message to R82.
2. Helped finish mockups for tray/packaging
3. Used excel to analyze sensitivity of impact time on stress in adapters.

JD:

1. Completed a software flowchart
2. Pinned out peripheral modules to the micro Comp.
3. Rescoped the project if we were to lose a member, but we didn't lose a member, so its all good
4. Chose a 12V to 5V regulator
5. Made a System Block Diagram

MV:

1. Met with Art North, Frank Liptak and JR to discuss different communication systems for the remote. - From this, we have decided to continue exploring RC given complexities of WiFi & Bluetooth applications.
2. Developed a system-level schematic for the various electrical components.

EC:

1. got Lego board
2. initiated conversation with packing science and outside vendor about material selection for the box
3. created CAD file for mounting bracket

III.) <u>What did we learn?</u>

JD:

1. Its much easier to have twice the personnel on a project
2. An engineer's view on usefulness/ease is very different from a customer
3. I'm putting a lot of faith in the motors not drawing HUGE amounts of current, because they haven't in the past or in any other situation I"ve heard of.

Alex:

1. Getting in touch with suppliers can be difficult.
2. Impact time affects stress in my parts greatly.
3. Analyzing impact with accelerometer will be interesting to investigate, but ultimately academic since my parts are not to be manufactured.

Greg:

1. Using previous teams analysis proved to be difficult due to the lack of information on what they did for the analysis
2. Use of Solidworks

EC:

1. How to use Solidworks

MV:

1. There was a lot of useful information in regards to the wifi-controlled systems that can be accessed via websites (which could be opened by anyone with internet access - allowing versatility for trainers with smartphones).

IV.A) <u>What do we need to do?</u> **<u>(GROUP)</u>**

1. Prep for Gate Review
    i. MSD II plan (Rev 1, with project-specific detail)
    ii. Reqs completed from MSD 1
    iii. Test Plan
    iv. Meeting notes must be captured/items for resolution
2. Overall Remaining work
    a. ME
        i. Finalize box material
            1. hinge size
        ii. Adjustable Hinge
        iii. R82 Feet for stander
    b. EE
        i. Choose final remote system selection.
            1. response/speed
        ii. Speed change?
        iii. Finish & redesign control schematic with new remote selection.
        iv. Finish EE B.O.M.

IV.B) What do we need to do? - **(INDIVIDUAL)**

Alex:

1. Attempt to contact R82 again, probably by phone.
2. learn how to use the accelerometer
3. Help tie up loose ends with adapters, tray, packaging.
4. Help group with completing documentation for gate review

JD:

1. Design New Remote, or redesign old remote to satisfy customer
2. Figure out speed of command loop
3. Learn about code testing
4. Finalize BOM

MV:

1. Work closely with JR in determining the best approach for RC/Bluetooth Remote System.
2. Have a solid plan for the establishment of the touchscreen control unit such that a testing approach is ready to go by the time parts are ordered.
3. Review code composer & learn how to use Tivaware effectively.

GR:

1. Set up test plan schedule with dates
2. Organize dates of when to order things
3. Plan potential meetings with kids
4. Draft instructions for packaging stander as kit draft using take apart and put back together model
5. Order hinge for Tray system

EC:

1. finalize box material
2. acquire industrial grade velcro
3. look into “user’s manual” - modify last year’s as needed