**Meeting Minutes – Week of 09/17 - Team 11**

**Planning Meeting 09/17 8:00am-9:00am**

Attendance: Myles, Dan, Parker, Ricardo, Jason, Matt (late)

Duration: 40 Minutes

Action items:

Parker – Investigate possible Northrop Grumman sponsorship

Jason – Bring scale to Wednesday meeting to weigh hexcavator

Ricardo/Matt – Investigate 3G hardware so decision can be made Wed.

Myles – Share Google calendar with team and upload individual schedules

* Aspect ratio of XLR and hexcavator
  + Hex A/R, does not match that of XLR, can shorten (most likely action due to dimensional constraints) or widen from to meet XLR A/R
* Robot weight
  + Hexcavator is reportedly 65kg, far over weight limit
  + Need to verify total weight at Wed. meeting
  + Need to determine weight of gearboxes+motors to determine if they can be used or if lighter components are required
* Wednesday Tasks
  + Complete Needs Assessment deliverable
  + Finalize 3G board choice(most likely Arduino)
  + Rest of time to be spent brainstorming/selecting Arm design
  + Meeting will end with determination and assignment of tasks in Asana
* Thursday
  + Determine required frame modifications, considering weight and size constraints and addition of robotic arm and camera

**Working Meeting 09/19 6:30pm-8:30pm**

Attendance: All

Duration: 2 hours

**Discussion**

* Dr. Clark currently looking for funding solution
* Estimated cost of 3G hardware ~$250 (Arduino breakout board, antenna, modem)
* Possible community outreach opportunity: McClay Middle School robotics classes with Robotics Club
  + Contact is Richard Hamilton (ECE student), Parker will keep in touch for developments
* New Code of Conduct due tomorrow
  + Myles will use team roles from first meeting to write new CoC
* Needs Assessment due Tuesday 9/25
  + Team will complete during 9/20
* ME Task Priorities
  + Frame Assessment and Redesign
    - Will determine minimum leg length required at next meeting and then size robot based on desired aspect ratio
  + Arm/Claw Design
  + Camera Mast (Do we even need a mast?)
* ECE Task Priorities
  + Finalize 3G hardware and order as soon as funds are available
  + Brainstorm ways to reduce number of motor controllers (6, one for each motor, used now)

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We then weighed the current robot to determine the extent of the required redesign and if the current motors and gearboxes can be used. (Competition weight limit: 99 lbs)

* Hexcavator weight (no batteries): 109.2 lbs
* Batteries (2): 10.2 lbs
* Robot Weight: **119.4 lbs**
* Leg and mounting plates: 2.2 lbs each
* Motor and Gearbox assembly: **10 lbs each**

This indicates that an extensive frame redesign is required; the robot is significantly overweight and an arm/claw, cameras, additional electronics, and storage bin still need to be added.

If current drivetrain (motor/gearbox/battery/leg configuration) is used, remaining weight for frame, arm/claw, cameras, storage bin and electronics is **15.6 lbs**. We will likely need to design a whole new hexapedal platform to meet competition weight requirements.

**Working Meeting 09/20 5:30pm-7:30pm**

Attendance: All

Duration: ~2 hours

Action items

Matt - will confirm compatibility of Arduino 3G board with the Verizon/AT&T network over the weekend

All MEs - will come up with a concept for the Arm/Claw to present at the planning meeting next week

Myles and Parker - will collaborate on Needs Assessment assignment, which will be ready for team review on Monday

Jason – will work on dynamic modeling of robot

Ricardo – will work on single motor control

**Discussion**

* It is necessary to establish a rough project plan in light of key findings and constraints
  + We have very little funding for the foreseeable future
  + The hexcavator drivetrain is too heavy for reuse, we will need to purchase new motors/gearboxes
* A rough plan for the fall semester was outlined as follows:
  1. Have a complete paper design of the new smaller hexapod platform, including all dimensions, a full hardware layout (3D model) and bill of materials as part of the proposal for the competition
     1. Upon selection by NASA, the resulting $10,000 will be used to purchase the new hardware required for the smaller platform, this new platform will be built during spring semester
     2. Locomotion control algorithms will be developed and refined on the current hexapod platform during the fall semester so that they need only to be scaled to the smaller platform
     3. 3G communication and control will be established on the current hexapod platform
  2. The arm/claw will undergo a full design and prototyping process during the fall semester
     1. The arm will be designed so that it can be tested on the current platform but will be optimized for the smaller platform
     2. A functioning prototype is to be built by the end of fall semester
  3. Video streaming over a 3G connection will be achieved during fall semester
* Dynamic modeling of the robot was discussed and is to be explored further by Jason this weekend
* Preliminary dimensions for the smaller platform were established based on the desired clearance and aspect ratio

31.5cm

56.25cm

56.25cm

30cm

* Robot was disassembled, Ricardo took home one motor, gearbox, battery, motor controller, Leg assembly and safety switch with the intention of establishing single motor control over the weekend