**Software Requirements/Features**

Each sprint has a time span of 2 weeks. All deliverables must be checked off by the client and reported to the scrum Master.

**Clients:** Dr. David Mutchler and other students

**Scrum Master:** Spencer Carver

[Week 6 of Fall Term]

**Sprint 1:**

* Determine if we'll stay with the current IMU/any sensors/GPS/emergency shut off switch (hardware+software)
* Choose and place order for a new sensor if we're switching
* Display real time camera data
* Display real time LIDAR data
* Husky can be remote controlled - basic movement (xbox, wii, your choice)

**Sprint 2:**

* Place order for a new sensor if we're switching
* Husky can be remote controlled - basic movement (xbox, wii, your choice)
* Display real time IMU data
* Display real time GPS data
* Emergency shut-off works (on board and wireless)

[Start of Winter Term]

**Sprint 3:**

* Husky can be remote controlled – (advanced speed controls, e-stop)
* Display any real time other sensor data
* Display system telemetry
* Record and replay LIDAR and camera data from run
* Can choose to record with remote control
* Identify the presence of all solid objects (aka everything but white lines and flags) within 50ft
* Identify the white lines
* Move from GPS point to GPS point
* Capable of sending data in real time back to a computer
* Demonstrate code-controlled camera settings (zoom, brightness, resolution, etc)
* Display real time IMU data
* Emergency shut-off works (on board and wireless)

**Sprint 4:**

* Record and replay other sensor data from run
* Distinguish between solid and dashed lines
* Identify the flags
* Identify the construction barrels
* Identify the trashcans
* Identify the fence
* Identify the sawhorses
* Identify the cones
* Identify anything else

**Sprint 5:**

* Avoid obstacles
* Plan path from 1 GPS point to another
* Stay between solid lines and dashed lines
* Display and deal with inconsistent sensor data
* Path plan with flag rules
* Can run the basic course without any speed consideration
* Determines if it is stuck in a corner/gravity well and deals with it
* Make the new motors turn under software control
* Get feedback from motors (encoders/Hall effect/etc)

**Sprint 6:**

* Plan path from current position to end
* Can run the basic course at a speed that ensures qualification
* Critical error prevention
* Can run the big course without any speed consideration
* Make the new motors turn perfectly under software control

**Sprint 7:**

* Integration testing
* Integrate with new robot at a basic course level

[End of Winter Term]

**Sprint Spring:**

* Can run the big course with an inputted goal speed
* Intense system testing
* Intense performance testing
* Integrate with new robot at an advanced course level

\*\*Plan might be subject to changes as the year moves along.