(20 pts) Approx. 2 days

The second part of our unit will have you designing, building, and programming your very own satellite! You'll work with the engineers in your AE class to get a satelite working correctly so that it can be used to survey the distant Martian surface as we continue to plan out the Malemute Mars Mission.

1. Review the presentations *Remote Sensing 1, Remote Sensing 2,* and *Active vs Passive Sensing*. Take a full page of notes on the capabilities of satellites and remote sensing setups. Be sure to include at least a few pictures of how remote sensing works!
2. **Brainstorm:** Work with your team to brainstorm at least 15 different input values that sensors on remote surveying satellites might have. Add your list of brainstormed ideas to your page of notes.
3. **Discuss:** Work with your team to read through the satellite design parameters listed below. Write a complete design brief in your engineering notebooks that includes all the relevant parts of a design brief!

   YOUR SATELLITE MUST:

   Work reliably
   Be able to read distances from the satellite to the ground every few inches
   Be able to drive itself along a 1" x 1" beam
   Be programmed as described in the Satellite Building Guide
   Be able to collect a range of distance values that can be converted into a map

4. **Build:** Following the Satellite Building Guide, build your complete satellite using VEX components and all the proper sensors needed to make a complete, functioning satellite.
5. **Program:** Using ROBOTC and the Satellite Programming Guide, write a program that an make your satellite properly read distances and save them to a file.

Part 2: Tasks	*5 points*	*4-3 point*	*2-0 points*
Notes on Satellites	+ You took a full page of notes on the ideas presented in the three presentations. + Your notes include some pictures + Your notes include your list of brainstormed satellite inputs	- Less than a full page of notes on the topics - Your notes do not include a picture - Your brainstorming is missing	- Very brief or no notes.
Satellite Design Brief	+ You wrote a complete design brief of the satellite challenge in your engineering notebook	- Your design brief is missing an element	- Your design brief is missing multiple elements
Build Satellite	+ Build your satellite using the Satellite Building Guide + Your satellite should be ready to function!	- Your satellite is missing important parts - Your satellite cannot work by itself	- Your satellite is non-functional
Program Satellite	+ Get your satellite programmed using ROBOTC and the satellite programming guide	- Your satellite is not properly programmed or needs a lot of assistance	- You did not program your satellite