

NASA Rock Mining Competition Software Team

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Progress of current Milestone (progress matrix)

Tasks	Completion	Catherine	Nicholas	To Do
Continue to implement and test Networking functions	60%	70%	30%	Need to implement video feeds via the embedded system to the control computer.
Continue to implement and test Operating System	100%	50%	50%	N/A
Continue to implement and test Software that controls hardware	50%	50%	50%	Troubleshoot the video camera
Continue to design, implement, and test autonomous functionality	20%	50%	50%	Create scripts to load and test that software starts up efficiently.
Verify that localization system functions properly	30%	30%	70%	Get the embedded computer to work with the camera

Discussion of each accomplished task (and obstacles) for the current Milestone:

- Networking - We were able to send data from one computer to another.
- Software to interact with hardware - Since the embedded system (Jetson TX1) came in last week around February 9, 2017, we have not made much progress on this task, but we hope to begin implementing and testing the software we developed this week. We ran into problems with the camera, the camera did not

come with the necessary power cord to power it. We need to contact the company and have them send us the correct cord.

- Operating System - Since the embedded system came in last week (about February 9, 2017), we were able to finish implementing the operating system onto it. We have tested it, and it functions smoothly.
- Autonomous Functionality - Using sample data, we were able to use a video to generate a point cloud to generate bounding fences. This will help the robot navigate the terrain without a controller controlling it.
- Localization System - Unfortunately, due to unforeseen problems with the camera, we were unable to work on the localization system.

Discussion (at least a few sentences, ie a paragraph) of contribution of each team member to the current Milestone:

- Catherine Grover - Catherine has been researching networking techniques in order to implement onto the robot. She is also working with the team in order to create a decent robot.
- Nicholas Persing - Nick has been working with the other team to finish up our development of the robot. He has been busy locating and finding the hardware we need in order to finally implement our software.

Plan for the next Milestone (Milestone 5)

(Operating System task was removed from the matrix for the next Milestone due to completion)

Task	Catherine	Nicholas
Finish implementing and testing Networking functions	Continue researching networking techniques and implement/test them.	Continue to test video feeds from one computer to another
Finish implementing and testing Software that controls hardware	Continue to work on integrating the software onto the embedded system	Continue trouble shooting the camera and work on integrating the software onto the embedded system
Continue/finish design, implement, and test autonomous functionality	Develop a script in order to run the software on the system	Continue to work on verifying the localization system.
Create poster for Senior Design Showcase	Work on creating the poster	Work on creating the poster

Discussion (at least a few sentences, ie a paragraph) of each planned task for the next Milestone

- Networking Functions - We will continue to research and implement the best techniques in order to run our robot with a minimum bandwidth. We will also work on sending the video to and from the embedded system to a laptop, and we will work on controlling the embedded system's software from a remote computer.
- Software that controls the hardware - Once we fix the problem with the camera's cord, we will implement the camera's software onto the embedded system. From there we will also load and test the software developed in order to control the robot.
- Autonomy - We will work on developing scripts in order to load the software on the robot during "boot". From there we will work on implementing and testing the localization system in order for the robot to know location and target information.
- Poster - Our poster will be part of the NASA Robotic Mining Team's poster. We will work with the rest of the

Sponsor feedback on each task for the current Milestone

Sponsor Signature: _____ Date: _____

Sponsor Evaluation

- Sponsor: detach and return this page to Dr. Chan (HC 322)
- Score (0-10) for each member: circle a score (or circle two adjacent scores for .25 or write down a real number between 0 and 10)

Catherine Grover	0	1	2	3	4	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10
Nicholas Persing	0	1	2	3	4	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10

Sponsor Signature: _____ Date: _____