1. **Project title, names and email addresses of team members**

   NASA LEC Robotic Mining

   Taylor Ertrachter - tertrachter2017@my.fit.edu

   Bailey Hamant - bhamant2017@my.fit.edu

   James Spies - jspies2017@my.fit.edu

   Nathaniel Bouchie - nbouchie2017@my.fit.edu

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   Eric Hu - ehu2017@my.fit.edu

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   Steven Pazienza - spazienza2017@my.fit.edu

   Alex Perez - aperez2017@my.fit.edu

   Youpeng Xu - yxu2017@my.fit.edu

2. **Faculty Advisor: name and email address**

   Dr. Marius Silaghi - msilaghi@fit.edu

3. **Client: name and affiliation**

   Aerospace NASA Lunabotics Engineering Competition (LEC) and
   Dr. Kimberly Demoret, FIT Aerospace Department

4. Progress of current Milestone (progress matrix)

Task	Completion %	James	Bailey	Taylor	To do
1. Investigate tools	100%	33%	33%	33%	none
2. Hello World demos	100%	33%	33%	33%	none
3. Implement, test & demo *ZED camera testing with Jetson*	80%	20%	20%	40%	Implement movement code
4. Implement, test & demo *Attach camera to physical robot*	70%	25%	20%	25%	Make camera compatible with Jetson

5. Discussion (at least a few sentences, ie a paragraph) of each accomplished task (and obstacles) for the current Milestone:

- Task 1: Because of connectivity issues, we were unable to test any movement code due to lack of essential input parameters for object detection such as height, width and depth measurements, but we still plan to implement this soon.
- Task 2: The team met in person in the Student Design Center to begin testing the compatibility of the ZED camera with the physical robot. The camera is attached to the front of the robot and supplied power through a battery on the side. We anticipated being able to communicate our code to it via the Jetson, but ran into issues with connectivity. We decided to try to use our code through a Raspberry Pi

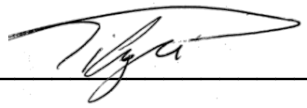
6. **Discussion (at least a few sentences, ie a paragraph) of contribution of each team member to the current Milestone:**
    - Bailey Hamant: Worked on project poster, researched alternative methods to using the Jetson due to connectivity issues. Looked deeper into the ZED's depth sensing codes.
    - James Spies: Worked on connecting the ZED camera to the Jetson and investigated reasoning behind why we could get the fan attached to the Jetson to turn on but couldn't connect elsewhere.
    - Taylor Ertrachter: Worked on connecting the ZED to a Raspberry Pi as an alternative, and looked deeper into possibly useful built in codes and features of the camera.

7. **Plan for the next Milestone (task matrix)**

Task	Bailey	James	Taylor
Make the robot manually controllable	Configure movement code	Make xbox controller compatible with robot and code	Make motors activiable through code
Take accurate measurements with camera	Focus on object distance	Focus on object height	Focus on object width

8. **Discussion (at least a few sentences, ie a paragraph) of each planned task for the next Milestone**
    - Task 1: Even though the stretch goal for the competition is full automation, this milestone we want to first make sure the robot can be manually controlled. We plan to control the movement of the robot through an Xbox controller, but first we will need to get all of the it's motors to be operational and activatable through our code. From there we can focus on the movement code that can be accessed via an Xbox controller, and work on configuring the Xbox controller so that it is compatible with the motors.
    - Task 2: Because the movement code will rely on the ZED cameras calculations of object height, width, distance and depth to make decisions when it comes into contact with any object (obstacles, mining materials), it is critical that we ensure the camera is taking accurate measurements. We are going to perform tests for all dimensions to enforce accuracy and reliability.

9. **Date(s) of meeting(s) with Client during the current milestone**:
    - February 22
    - March 1
    - March 8
    - March 15
10. **Client feedback on the current milestone**
    - Client discussed with us how she planned to improve next year's software team by expanding their budget, and was pleased with what our team has accomplished under the unique circumstances of this year.
11. **Date(s) of meeting(s) with Faculty Advisor during the current milestone:** .
    - March 15
12. **Faculty Advisor feedback on each task for the current Milestone**
    - Task 1: ...
    - Task 2: …
    - Task 3: ...

Faculty Advisor Signature:  **Date:** _____

13. Evaluation by Faculty Advisor

- Faculty Advisor: detach and return this page to Dr. Chan (HC 214) or email the scores to pkc@cs.fit.edu

- 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)

Taylor Ertrachter	0	1	2	3	4	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10
Bailey Hamant	0	1	2	3	4	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10
James Spies	0	1	2	3	4	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10

Faculty Advisor Signature: _____ Date: _____