Milestone Progress Evaluation

Synthetic Data Pipeline for Pose Estimation

Members:

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Faculty advisor and Client: Dr. Ryan White rwhite2009@fit.edu

1.   Progress of current Milestone (progress matrix)

Task	William	Nate	Stephane	Hanibal	To Do
1.Add additional lighting features	0%	100%	0%	0%	
2. Refactor code to change moment from the satellite to the camera	100%	0%	0%	0%	
3. Attempt to implement .stl files for satellite model	0%	0%	100%	0%	
4. Make background pannable	100%	0%	0%	0%	
5. Start writing documentation for program	0%	0%	0%	100%	Continue adding documentation and detail
6. Write Ebook page	0%	0%	0%	100%	
7. Create poster	0%	100%	0%	0%	

2. Discussion (at least a few sentences, ie a paragraph) of each accomplished task (and obstacles) for the current Milestone:
   - Task 1: We were able to add an additional lighting source option. The SUN lighting feature uses a grid of light to shine evenly across the 3d space. This feature can be positioned at any angle and is accessible from the configuration file.
   - Task 2: We implemented all of the object movement code that we had applied to the satellite to the camera. This allows for movement of the camera with functions. I also added functionality that allows both the satellite and the camera to move around in circles. The camera is set to point (0, 0, 0) where the satellite should be but this point can be changed. I also added an earth model based on user feedback.
   - Task 3: We were able to import stl files into our code in Blender. However, we later figured out that stl files are very basic and don't come with any color, shading, or any other material information. It's not something that comes with the files but rather it needs to be added in by the user. So it's very likely that we will stick with .obj files for the next milestone.
   - Task 4: We changed this a little bit. Instead of having the background pan across a jpg file, we generate a bunch of random dots in the background to simulate stars. We added options so the user can change the brightness and number of stars. The brightness, number of stars, and the distance of the stars can all be adjusted.
   - Task 5: we started writing some of the documentation for the next milestone. We created an outline that goes over the main features of our program and how to customize different options. We will continue this work into the next milestone for the user and developer manual.
   - Task 5: We created the page for the ebook following the template and guidelines. No problems occurred.
   - Task 6: We created the presentation poster following the template and guidelines. No problems occurred.
3. Discussion (at least a few sentences, ie a paragraph) of contribution of each team member to the current Milestone:
   - William Stern: I implemented a few different things for this milestone. Added movement options to the camera so that the camera now can go around the satellite. I also added stars to the background, and added an option to import an earth model. This required a lot of research and testing to get right. I also added many new options to the configuration file for things such as camera movement, stars, and the earth model.

- ■ Nate Pichette: I implemented the Sun type lighting. This is a light source that comes directly out of a large grid at a chosen angle. Looked at what was necessary to apply movement to the camera. I also made the poster.
- ■ Stephane Baruch: I did some research into stl files and was able to import said stl files into Blender.
- ■ Hanibal Alazar: I worked on documentation and created the ebook page.

4.   Plan for the next Milestone (task matrix)

Task	William	Nate	Stephane	Hanibal
1. Finish adding all customization to the toml file.	demo	dev	Test	test
2. Make camera view changeable	Dev	Test	Dev	test
3. Work on video demo	Dev	Test	Test	Dev
4. Get evaluation from client team	Dev	Test	dev	demo
5. Work on user manual and developer manual	Test	demo	test	dev
6. Refactor code	Dev	Dev	Test	demo

5. Discussion (at least a few sentences, ie a paragraph) of each planned task for the next Milestone
- ■ Task 1: There are still a few things that need to be added to the TOML file to make them customizable for the user. Some of these include some settings for the

stars, and camera view. We also need to test all the different settings once again to make sure that they are all working properly.

- Task 2: Currently the camera view is centered at (0,0,0). Based on advisor feedback we will add some settings to make this customizable so that the camera can point towards any point. We will also add functionality that will allow the camera view to move throughout the animation to do things like follow objects.
- Task 3: We will create a short video based on the guidelines showing off the main features of our program. These will mostly be camera movement, star and background customization, and importing different satellite models.
- Task 4: We will show the documentation to the client team and evaluate how well they are able to use the program. We will also see if they have any feedback. We can then implement changes based on their feedback.
- Task 5: We will create the user and developer manual based on the guidelines. We will put in-depth information regarding all the possible customization settings and features. We will also show all the features of the code so that the research team can modify it as needed if they want to add new features.
- Task 6: Currently the code is quite unorganized and messy. Cleaning it up will make it much easier to read and to figure out what is going on. This will not only help the client figure out the code if they need to modify it, but it should also help make our documentation work easier.

6. Date(s) of meeting(s) with Client during the current milestone:
   1. 3/10/2023

7. Client feedback on the current milestone
   - see Faculty Advisor Feedback below
8. Faculty Advisor feedback on each task for the current Milestone
   - Task 1: He said that the new lighting features look good.
   - Task 2: He said that the camera movement looks really good. He still wants the option to move the satellite though. He also recommended adding an option that allows the user to modify the view of the camera. This can be used to follow objects or more.
   - Task 3: Dr. White said that the work on the stl file looks good. The team would like to use stl since that is the easiest but if it doesn't have the features that the program needs they can convert it to an obj file which our program currently supports.
   - Task 4: He said that the new stars look really good and that we should have both an option for star generation and for having a static jpg background.
   - Task 5: He said that we should add as much as possible to explain all the features. He also gave some tips on tools we can use to help us write the documentation.

- Task 6 and 7: We got a link to the poster of a team that worked on a different part of the project in the past so we could see what types of stuff to implement.

Faculty Advisor Signature: _____ Date: _____

9. 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)

William Stern	0	1	2	3	4	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10
Nate Pichette	0	1	2	3	4	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10
Stephane Baruch	0	1	2	3	4	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10
Hanibal Alazar	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: _____