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| **Rose-Hulman Institute of Technology** |
| **Status Report Week 7** |
| **CSSE463: IGVC Vision** |
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Rose Hulman Robotics Team CM 5000

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The team managed to come together and agreed on a plan to accomplish all the deliverables by the expected project due date. The team proposed a rough sketch of the project plan that outlines all of the necessary steps in order to accomplish all the tasks. In addition to the project planning, each member of the team set-up a GitHub account (for all code-related work and deliverables) and a Dropbox account (for image storing) to be used as the team repository. Ander added pictures to the repository that includes pictures from the actual IGVC as well as other field-test images.

This week, Ander and Ruffin got the design approval check-off for constructing the mounting bar for the stereoscopic cameras. The design includes a flexible mounting schematic where the spacing between the sensors can be controlled by 2 centimeter increments. The design also includes robust mounting solutions to prevent undesirable augmented movements that would later invalidate the calibration of the cameras after operation.

Using LabVIEW as our main programming language, we managed to experiment with native machine and manufacturing vision algorithms to calibrate and test our stereoscopic cameras. We are trying to see how calibration file can be useful for other software applications such as MATLAB.

Ruffin also created an acquisition VI (visual instrument) that allows the user to save and record images from the stereoscopic USB cameras.

The VI includes the following features:

1. Real-time visual feedback for both, left and right, cameras.
2. Histogram representation of HSV and RGB color spaces.
3. Status about the frame rate, frame resolution, and index of the current picture saved.

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