

Final Implementation Report

Achieved before schedule was the GUI (the look and feel, not the usability). Most of work on the robot itself ended up working generally on schedule. Everything else was some variation of off-schedule. Panoramic generation was more or less on schedule - it was probably the easiest task. Rest endpoint implementation took a bit longer than expected and we'd find there were endpoints we forgot and needed to create. Other times things just needed to change - the minimum distance the robot could travel was inaccurate, grid orientation was changed and so forth. Integration turned out to be a much bigger job than expected and took up all of Thanksgiving break for Adam and Victor. In the end, the livestream got dropped because it was causing issues with the pi. Motor tweaks spanned to the end, including finding out how to wait to send a response until the motors were finished moving. Partially achieved behind schedule was autonomous mode. We got it working at the end after much pain with coordinate mismatches between frontend and backend, but we had to limit it to only one position on the map. Obstacle detection was rather touch and go - we limited the detection code to only log an obstacle if something was detected within 35 centimeters, and sometimes this meant that an obstacle went undetected - after the motor wait code it probably would have been less of a problem and we could have upped the value. The big reason it was clamped in the first place was to avoid noisy data adding junk to the database that shouldn't be there. Movement in general probably could have been improved, but we could not figure out how to get readings from the motors to correct errors, and we could not figure out how to engage both motors when turning. This was largely due to all the other moving parts going on with this project.