Reviewee Name: Ammar Husain		**Job Title:** Senior Software Engineer	
Manager Name: Kjerstin Easton		**Level:** 5	

Manager Assessment

*Complete this form at least 72 hours prior to your calibration session so that other managers can review your notes ahead of time. We recommend that you meet with your Xer ahead of the calibration session to align on their past performance and expectations. After your calibration session, it is your responsibility as a manager to update this assessment based on feedback from the calibration session. The final result **(both the rating and your manager assessment notes)** will be released to your direct report at the end of the cycle.*

Assign a rating for your direct report based on the past 6 months. Visit go/xperf-ratings for more information.

Rating

2 - You're performing well in most areas but occasionally miss what is required for your role. Work with your manager to understand what you're missing, developing, or still ramping up in and strive to leverage your strengths to fill in the gaps.

Calibration Notes

Why this rating and why not higher and why not lower? Focus on how this Xer has demonstrated performance at the proposed rating

- Why not higher: Ammar has room to grow in his L5 role in showing more initiative in planning/scoping/driving projects. He could have more impact by delegating tasks in collaborations and taking a more active role in establishing expectations.
- Why not lower: Ammar is a valuable member of the team who has stepped up to put out a large number of complicated "fires" this cycle, especially relating to MetA bringup and rolling out Sorty at REWS.

Self Assessment

Visible to: Xer, manager, calibration members, promo decision makers

The What: Please list your three main achievements and the impact it had.

1. AutoLook (go/proxy-autlook):I drove the execution, implementation & deployed AutoLook, a feature that enables the robot to actively perceive the environment via moving its head to explore areas of interest.
   1. Design Process: Independently planned & designed the system architecture as well as scope the relevant deliverables over various phases. Presented & incorporated feedback in the design reviews for Navigation & Proxy SW.
   2. Cross functional: Worked closely with Jeff (manipulation), Acorn (framework) & Mik (planning) in order to unblock various required pieces.This included delegating new feature requests, regular follow ups, & providing constant feedback data on bugs encountered.
   3. Implemented the AutoLook module, its corresponding tests as well as modified the DriveTo L4 command to glue the pieces together. The implementation also involved fixing other outstanding issues within nav perception such by clearing robot hull, adding decay exclusion zones etc (cl/259028020, cl/247112791, cl/261218364).
   4. Deployed the system onto the robots for regular operations.
   5. Filed patent application: X-51285-00-US

1. Augment features toward building a more robust multimodal navigation perception system:
    1. Ramp project (go/proxy-ramps, cl/241570822): Augmented floor classification to include ramps as floor types and added heuristics for discontinuous boundary points that enables the robot to drive up & down ramps at REWS.
    2. Over the summer I managed Elahe's internship project that involved generating training data in order to semantically segment "floor" in images as well as run experiments with training a bootstrapped model with the generated images. I have also filed for a patent application X-51286-00-US for the ultimate semi automatic segmentation pipeline that this project was the first step toward.
    3. Miscellaneous: Implemented image warping in order to remove OpenCV dependencies (cl/236934109) and migrated all tunable heuristics into easily configurable proto files rather than compiled inline (cl/241570822).

1. Payback technical debt:
    1. Bug triaging: I've been serving as the primary for root causing any issues, bugs or fires that may be caused due to or manifest within the nav perception outputs. These have emerged from ego hits, noisy stereo point clouds, ego motion jitter, stray obstacles in the blindspots among others. To that end I have worked on refactoring the visualization markers in nav perception to make the colors configurable for easier debugging (cl/248573869) and have been pushing toward more CO training for better artifact generation. I have also been providing new detailed feature requests on the logging and visualization teams. Finally I have fixed some bugs that were discovered in the nav perception system (cl/233850638, cl/242972907, cl/258632126).
    2. Came in 2nd place in the Protoplasmic Fixit week by migrating several protos over to Blue proto or cleaning out the unused ones. Also wrote extensive tests to check for aliasing effects when merging occupancy grids in the map_merger module (cl/234026480, cl/233850638).

The How: Please rate each attribute pertaining to your Tech or non-Tech job ladder (go/x-ladders) using X's 5-point scale (go/xperf-ratings) and provide a brief example or justification.

Tech attributes:

- **Knowledge & Experience:** 4

Given my years of experience as a software engineer I have been able to easily & independently assimilate within the Google SW ecosystem, C++ standards & other coding practices. Additionally with a specialization in robotics I have been able to understand, take ownership & build up on the current navigation perception codebase as well as contribute ideas & small features to the Proxy SW framework

- **Complexity & Scope:** 3

For my assigned projects, I have worked mostly independently to research, scope and propose an implementation for the problem at hand. This included following a thorough design process of interviewing stakeholders, writing & presenting a detailed design doc and identifying risks & dependencies etc. I have tried to elaborate on the expected deliverables & broken them up into several phases, while trying to minimize unneeded complexity even though there are usually several moving parts in a complex system.

- **Leadership & Influence:** 2

My leadership has been limited to drive my own assigned projects by working across teams to get the required dependencies implemented or resolved. I also led & influenced Elahe's summer internship through technical direction, active mentorship & helping her negotiate her dependencies & risks. I briefly led the design discussions on data representation for holistic perception prior to the reorg. Toward that end I met with stakeholders in Learning & Manipulation to gather & consolidate perception requirements.

- **Organizational Impact:** 3

My organizational impact has been in stepping into fill the void & serve as the primary point of contact for navigation perception, answering questions or looking into associated bugs. Additionally through AutoLook I've been able to contribute feedback toward making dynamic part locking work in the Proxy framework. I have also pushed for feature requests like the ability to toggle visualization markers or correlating text & IPC logs among others. Another example of potentially impacting the org was when I discovered over a few days of painful debugging that the simulation stereo camera were being run at 2Hz. This was screwing up nav perception artifacts in simulation, or the ability to use the simulated stereo point clouds for any meaningful system testing. I spoke with & pushed for the simulation team to fix this slowdown for a more representative sensor simulation.

Self Development: What's one thing you can do to improve your impact in your current role?

Task Delegation: I would be more effective in influencing the project further if I improved at delegating more tasks & drove the effort to get them delivered on time. This would involve involve more communication & developing patience to stitch together multiple varying timelines of tasks getting done. It would be great to get some backing & escalation so that those projects are appropriately prioritized within the teams.

X Values: Please select 1 X value (go/x-values) that you exemplify.
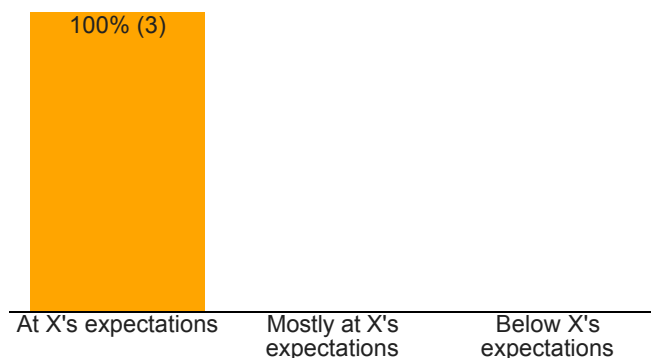
Teamwork

Provide a brief description about how you embody this X value.

I enjoy working with the team at Proxy, getting their help when needed and providing guidance & assistance when required of me. There have been moments in my time here where I have picked up behind the scenes tasks & fires that were not in my quarterly goals but had to be addressed. A specific example was putting development of AutoLook on hold for a little while to help out with Meta bring up problems especially related to noisy stereo point clouds due to calibration & motion blur.
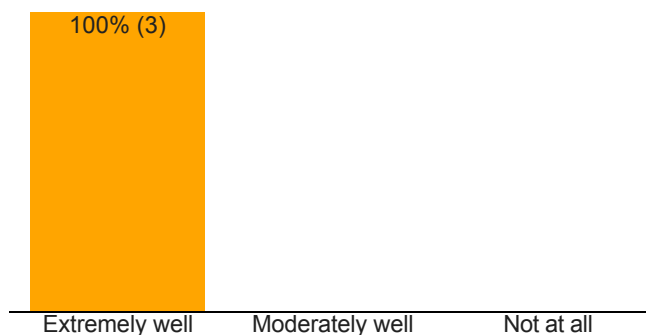
Colleague Feedback

Visible to: Xer (aggregated only), manager, calibration members, promo decision makers
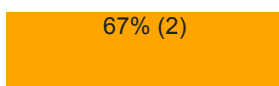
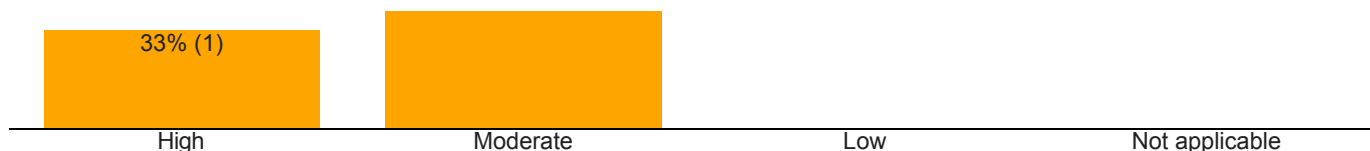**How well does Ammar foster an environment of respect?**

100% (3)

At X's expectations · Mostly at X's expectations · Below X's expectations

How well does Ammar demonstrate teamwork?

100% (3)

Extremely well · Moderately well · Not at all

In the scope of your work with Ammar, how would you rate the impact of their contributions?

67% (2)

| | High | Moderate | Low | Not applicable |

33% (1)

Why did you answer that way (teamwork)? (Required)

Ammar did a great job to design the new interface of the synchronization module in the system. As a common library, this module do not scale up with different synchronization polices with project growth. Upon noticing the limitation, Ammar discussed and gathered user requirement from a large verity users and develop a solid design doc for the library.

He demonstrate highly self-motivated to improve current synchronization, we can't wait to see the new module be implemented.

As an addiction, Ammar handle most of the perception navigation bugs and figure out the root causing independently. This is extremely helpful for the team and allows everyone to stay focused as well as quickly and efficiently fix critical bugs.

Why did you answer that way (impact)? (Required)

Ammar has taken ownership of the "look around while navigating" feature which improves the robot's ability to navigate in cluttered or changing environments. This has required understanding a variety of different parts of the robot stack. His contributions are important. Since starting he has come up to speed quickly. He has made several good suggestions for improvements in different areas.

Ammar designed new auto-looking module to improve sensor coverage of blank spot, thus smoothed the robot trajectory. This module cleaned false positive obstacles in local map and increase robot safety. It was a very challenging task since this involved different communication pipes for heading control and base control as well as different looking polices. Ammar is working independently and solve all the problem by himself.

As an addiction, Ammar help to support intern interviewing process and holding Elaheh as X-intern for the summer, this is a great support for the X recruitment.

What's one thing that Ammar can do to improve impact in their role? (Required)

He could demonstrate more ownership of the well-functioning of the systems or improvements he made. Paying attention to every quirk the robot might start displaying immediately after landing a feature is as important if not more than landing the feature in the first place. Some of his contributions (driveable ramps, blind-spot masking, ego-hull tracing, and auto-look) have not completely resolved the issues or created new ones, and I feel those new issues did not get the sort of immediate attention I would expect. It's probably good practice to plan to spend about as much time to deal with those issues as the amount of time spent developing the feature.

Can't think of anything.

Ammar is showing a great potential during the design process at synchronization module, I believe Ammar could work larger impact by exploring wider range of topic and tasks.

Promotion

Visible to: Xer, manager, promo decision makers, solicited peers