To: OBC Committee
From: Viking Robotics Society
Subject: Robot Arm – Progress Report 2

Dear OBC Committee,

The following letter is to report on the progress of the Robot Arm project that is due at the end of Spring term 2020.

Introduction

On November 01, 2019, we have submitted the project proposal for designing a Robotic Arm for the Viking Robotics Society. Upon receiving approval for the project, we have immediately started working on designing the CAD model and planning for the project. The goal is to build a fully functional robotic arm that can draw and write from human user input. The project is currently being worked on by the members of VRS until the final submission.

The Background

VRS does not have a working robot that is designed and programmed by the members from scratch. All of our previous projects have been from pre-built kits. We currently have several members who are seniors and very invested in learning more about robotics. This project is initiated to give the members the opportunities to learn more about the engineering design process and nurture a new generation of new members about project management and teamwork. This project will also give the club something to show off that is of our own design.

Work Completed

Physical Design

We have completed the second design of the robot arm, which has been 3D printed. However, this current design is too heavy to perform smooth motions; the next design aims at reducing the weight and improve the rigidity of the joints.

Electronics

We have assembled the Dynamixel motors and performed torque tests to evaluate their functionality. The AX12's perform as expected. The RX64 is using an obsolete communication protocol that does not have sufficient documentation. We have consulted with Professor Alexander Hunt, who works with Dynamixels in his research. Dr. Hunt said that he has never worked on the old protocol in his line of

work, given many years of experience with Dynamixel. We will need to order a new motor that uses the lastest communication protocol for the robot arm project.

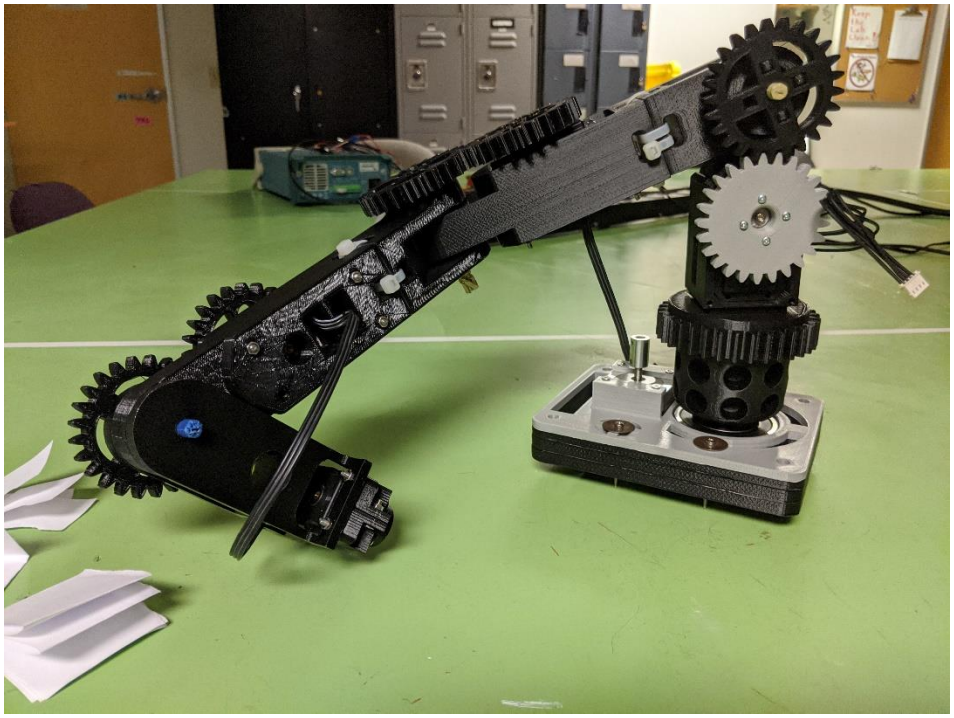
Show & tell

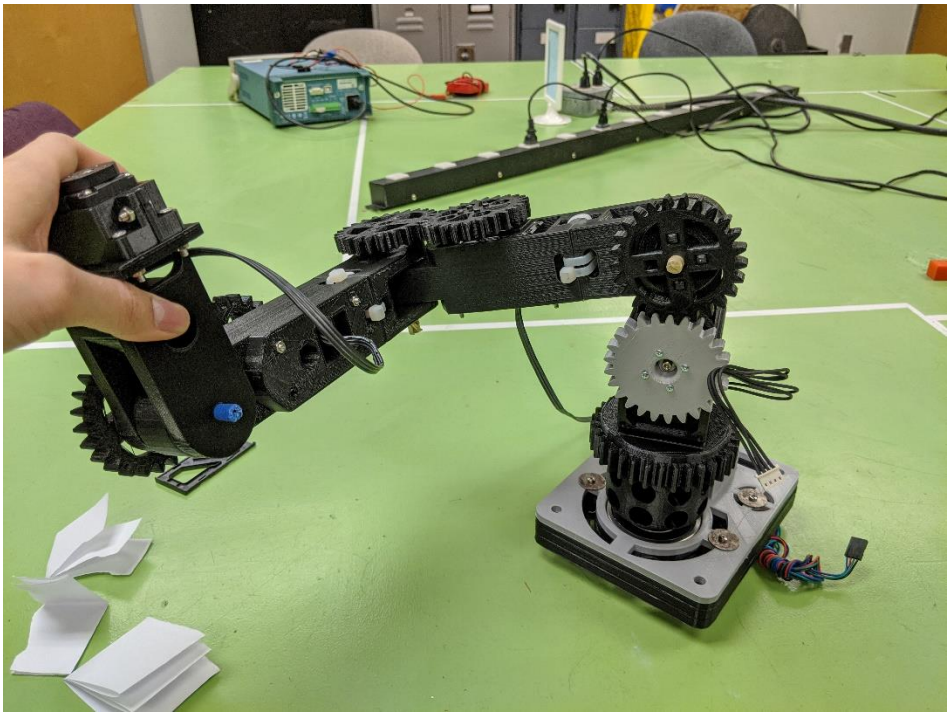
Video

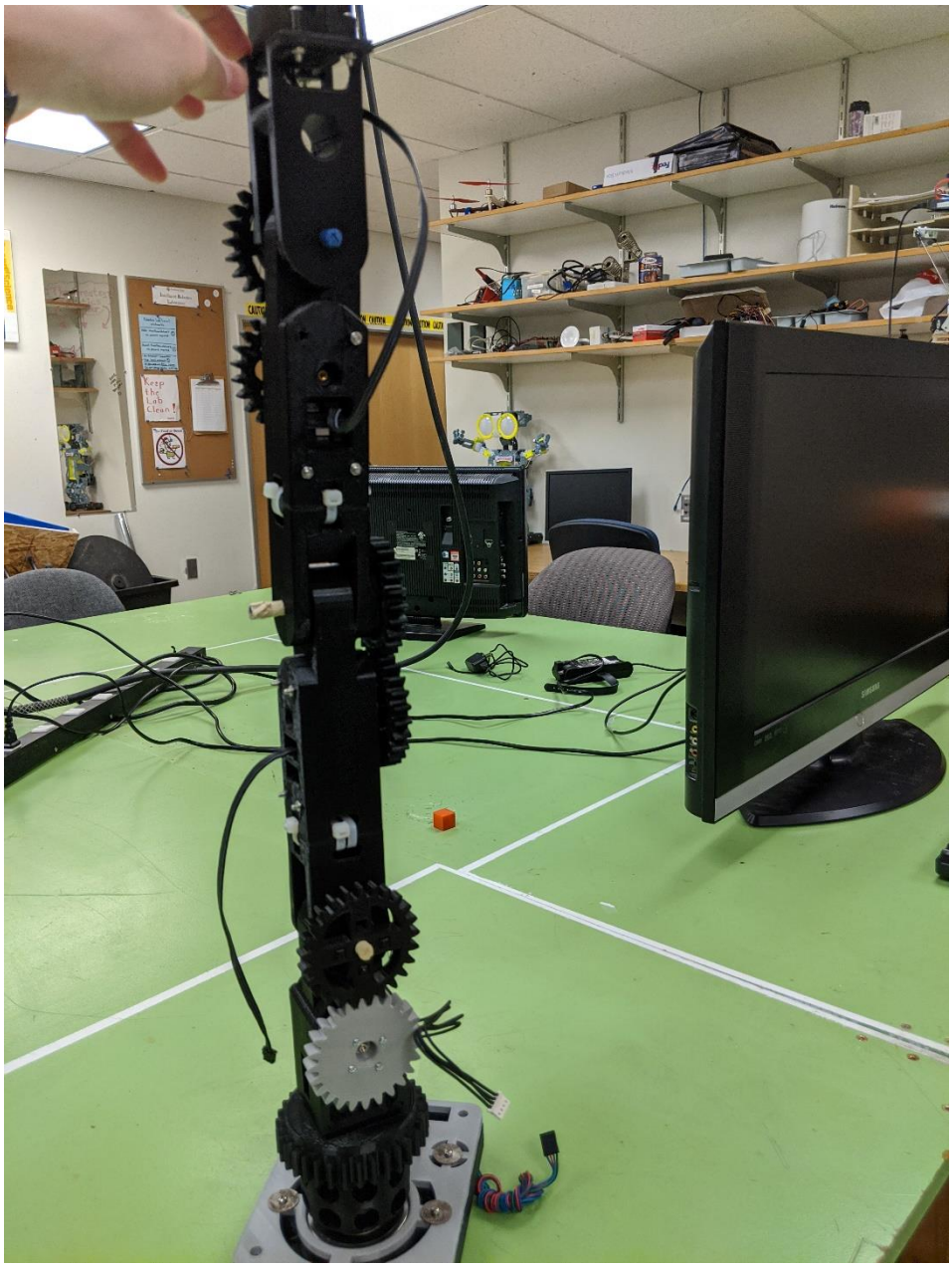
Link 1

Link 2

Picture






Keep the Lab Clean!