Robot tool – Project Description

# Problem

When creating tools for robots, testing is an essential part of the process. The common practice when testing these tools is to put them on a robot situated in a testing environment. Having a robot setup only for this single purpose is both expensive and potentially time consuming due to the time spent booting and programming the robot when testing the tools most basic features.

There exists a need for a device that is able to test the basic features of a robot tool while at the same time being easy to handle and fast to setup and use. For this project, the target tool is the RG2 gripper from OnRobot.

This project focused on electronics and embedded programming. The typical robot tool typically work with 12V or 24V. The device needs an interface for the tool that can both supply the required level of voltage and handle I/O at this level of voltage. The device should also be able to handle survive potential noise coming from the robot tool, such as back EFM.

# Resources

<https://www.universal-robots.com/media/1226143/rg2-datasheet-v14.pdf>

<https://s3-eu-west-1.amazonaws.com/ur-support-site/22046/UR5_User_Manual_en_Global.pdf>

<https://www.jameco.com/Jameco/workshop/Howitworks/what-is-an-optocoupler-and-how-it-works.html>

<https://www.youtube.com/watch?v=3AVHqV_xASQ&ab_channel=TheEngineeringMindset>

<https://www.youtube.com/watch?v=GrvvkYTW_0k&ab_channel=AddOhms>