



Automating Quality Control in Industry 4.0 Using Machine Learning

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01

Objectives

02

Methodology

03

Current Status

04

Next Steps



Introduction

What is quality control?

Quality control is a procedure or set of procedures intended to ensure that a manufactured product or performed service adheres to a defined set of quality criteria or meets the requirements of the client or customer



Introduction

What is industry 4.0?

It is the usage of machine to machine communication to automate processes that were otherwise were done by humans.

01.

Objectives

To extract and use data to
“smartize” the quality control
process in factories.

02.

Methodology

Train a robotic arm to automate the quality control process.



Methodology

Finding the faulty product.

- Image acquisition
- Image Preprocessing
- Segmentation
- Feature extraction
- Classification
- Testing



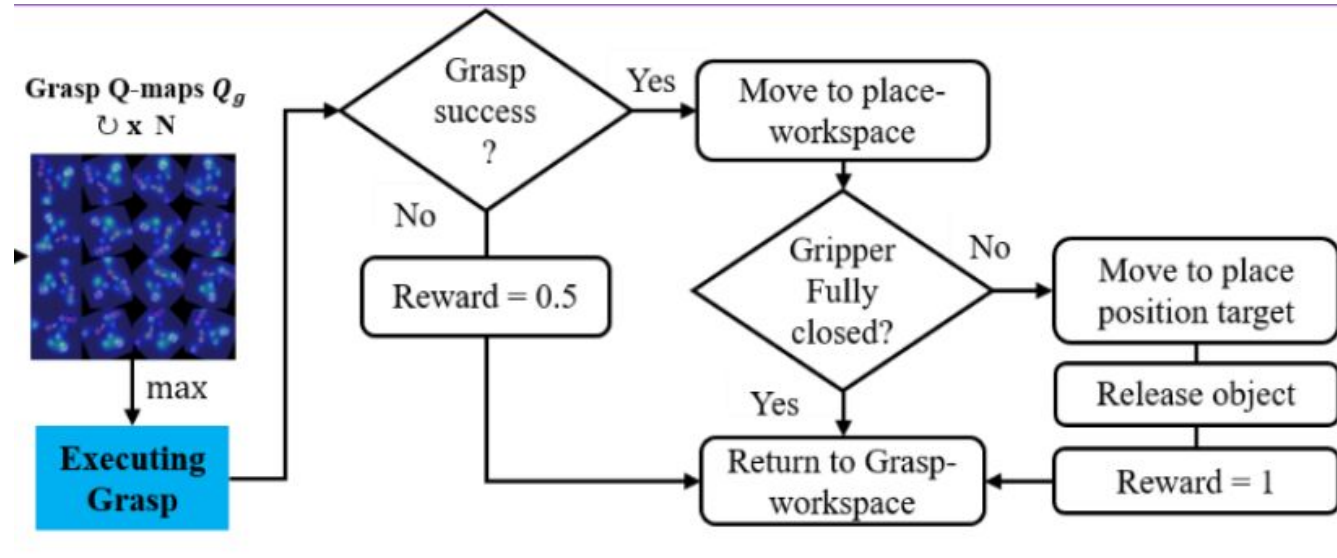
Methodology

Robotic Arm

- Link the results with the movement arm.
- Train the robotic arm to locate the location of the ML result using Deep Deterministic Policy Gradient algorithm.

Methodology

Robotic Arm



03.

Current Status

Linking the machine learning algorithm
with the xarm.

04.

Next Steps

Train the robot to locate the object of interest relative to the robots position and grab it.

The background of the slide features a series of vertical bars of varying heights and widths. The bars are colored in three distinct shades: a deep red, a mustard gold, and a light, muted blue. These bars are arranged in a way that creates a sense of depth and movement, with some bars appearing to recede into the background while others stand more prominently in the foreground. The overall effect is a modern, minimalist aesthetic.

Thank you