

Insert the title of your thesis here

Master's thesis number: MT-52-22

Introduction and background:

Hapro Electronics provides Electronic Manufacturing Service (EMS) for the electronics and data industry and manufactures and produces everything from circuit boards to larger complete units, both with electronics and mechatronics. Quality control and other inspections are an essential part of electronics and mechatronics production. At Hapro, quality control is a critical process, as they have many types of circuit boards, components, and solders that need to be verified. Today, the quality control or inspection is performed either by operators or by Automatic optical inspection (AOI).

Problem description and objective:

The purpose of the thesis is to examine the feasibility of utilizing machine learning to detect different circuit board components in a low-cost inspection cell. The vision cell will have to be built to take images for training, after which software for a neural network will be created. Experiments was conducted using the image data and the neural network to determine the usability of the network in practical applications.

The experiments conducted in this thesis will be limited by the training data available and the training time for the neural network, as the training process of a neural network is a time-consuming endeavor.



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