



AimValley is a world class engineering and innovation center that designs and builds networking solutions. We are based in Hilversum, with a strong presence in the USA and India. We started in 2003 as a spin-off from Lucent Technologies (a successor from the American company AT&T), that is why we have a strong background in telecommunication solutions and have build-up vast expertise in real-time processor techniques. Most of our design & development is done in-house.

Product development entails preparation of requirement documents, specification of system architecture, electronic development (block diagrams, board design, system certification, mechanical design), FPGA/ASIC development, software development, system verification and product/factory introduction. AimValley makes use of FPGAs to process high speed transmission functions. Real-time requirements are also key in our software development.

Our business is about people and our teams are dynamic, skilled and passionate about technique. Recruiting and training the right talent is an essential part of the AimValley DNA. We have over 80 employees of which 75% works as design expert in the R&D organization. All R&D employees have a college or university level education.



Project Introduction - Smart Assembly Checking using ML

During the manufacturing of AimValley telecommunication equipment, each product is fully tested/verified. This also includes (manual) assembly aspects, like; applied screw torque, component placement, and orientation of for example; 1D/2D bar codes and other labels, thermo-pads, electrolytic capacitors, shock absorbing material, etc.

For this assignment, the scope is extended to include checking for mechanical defects like scratches and presence of fingerprints in particular related to mechanical assembly.

Photographs are taken from the inside (printed circuit board) and the outside of the product. These photographs are used in real-time by the automatic assembly checking control system. Which must fit into the test strategy as applied by the electronics manufacturing services supplier (EMS).

The current mainly Machine Learning (ML) based tooling needs to be enhanced concerning features, maintenance, robustness, and (real-time) performance. Also, incremental learning may ease the introduction of new or modified components.

Project Description

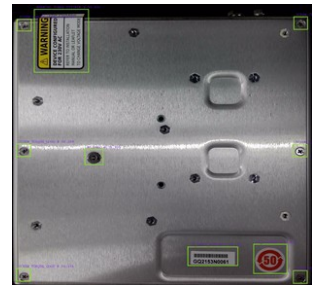
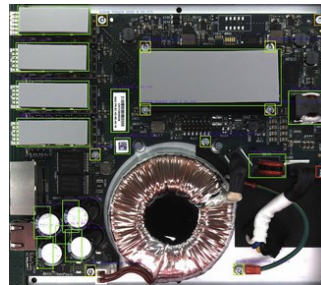
The ultimate goal is to implement a set-up that can check the products that are in the manufacturing phase, in seconds. Involving machine learning in a flexible, robust, and maintainable way.

Complexity

The complexity of this internship lies within the ability to understand how manufacturing assembly errors can be detected/recognized in the photographs, as well as how to automate this.

Keywords for this project

- > Image processing
- > Open CV
- > Labview
- > Unix, Windows, Python, Git
- > ML frameworks, e.g. TensorFlow



Affinity

- > Scripting, e.g. Python
- > Manufacturing processes
- > Artificial Intelligence

Skills

- > Communicative in English language
- > Hands-on, independent attitude
- > Inquisitive
- > Persistent
- > Accurate (in documentation)

Are you a student with a can-do attitude and a passion for technology?

AimValley is your company!

Why not join us today: working@aimvalley.com