aetina

Application Study

KeCheng

Successfully increased the accuracy of defect inspection to above 90%

About KeCheng |
Focused on electronic products and software development, and later turned into a customized equipment supplier with R&D and process integration capabilities.

Introduction

In the modern producing process, products need to be inspected at several important stages to facilitate early capture of defective products, but it also increases the process time with multi-station inspection. In order to speed up inspecting duration, automated vision inspection (AVI) and automated optical inspection (AOI) have become an indispensable part of the producing process. However, the past AVI equipment often caused misjudgment due to factors such as chromatic aberration or height drop, which increased the cost of manual processing.

Challenge

KeCheng Tech. is dedicated to metal inspection, customized system integration services and the development and optimization of vision inspection software. In this case, the customer already has AVI equipment in the original production line. Due to the high false alarm rate of equipment, it often costs a lot of manpower for re-inspection of abnormal detection, which not only wastes human resources, but also increases the processing time. Therefore, the customer's demand is to introduce the AI deep learning technology into the process without replacing the original AVI equipment and reduce the false alarm rate of AVI stages.

Solution

KeCheng tech. used their wealth experience of system construction and vision identification application to import Aetina Jetson AI computing platform, which provides AI deep learning vision inspection ability, in the existing AVI stages. The architecture of this intelligent AVI solution consists of existing AVI equipment, high-performance AI computing servers, data centers and vision inspection algorithm. If the defect is detected at the measuring stage, the AVI equipment will sent the alarm data to AI server for re-inspecting. Once the misjudgment occurred, the product will continue to the next process stage. On the contrary, the results will be sent back to the AVI equipment and determine whether to notify the product manager to handle according to the rules of the algorithm.

In the overall system, the high-performance AI server is built with Aetina Jetson AI computing platform, which is based on Aetina Jetson carrier board, ACE-N510, and Nvidia Jetson TX2 computing module. The platform provides 256 CUDA computing cores and 1.3 TFLOPS on AI inference capabilities, which not only fulfills the computing ability required by the AI server, but also carries with the advantage of small-form factor, making it easy to deploy in the original production line. Combined with KeCheng tech.'s vision inspection algorithm, each Aetina AI computing platform can cascade up to 15 AVI equipment and inspect eight kinds of defect type. This intelligent AVI solution successfully increases the accuracy of automated vision inspections to above 90% and eliminates the effort of trivial manual re-inspection. In the same time, it effectively reduces labor costs and increases the yield of production lines.

Results

Compared with other industries, the combination with AI and manufacturing has greater opportunities and potential markets. In the environment where production efficiency and quality are concerned, the application of artificial intelligence brings great benefits and productivity. Together with KeCheng Tech., Aetina practices AI applications on industrial production lines, which using vision inspection technology to improve production quality and inspection equipment. As the result, this intelligence AVI solution effectively upgrades existing systems and easily imports AI into the traditional industries.

LEARN MORE

Contact us: sales@aetna.com
Learn more: https://www.aetina.com/products-detail.php?i=252

aetina

NVIDIA PREFERRED PARTNER