ABBYY FineReader® Engine Tests LCD Monitors in First-Class Cars

Customer Overview

Name
Automotive Manufacturer

Location
South Korea

Industry
Automotive sector

Challenge
Increase recognition accuracy in 31 languages.

Solution
Integration of a solution based on ABBYY FineReader Engine into the Human Machine Interfaces of LCD monitors.

Results
- 100% accuracy of recognition results in 31 languages
- Processing time decreased tenfold

ABBYY FineReader Engine helped to improve the accuracy of Human Manchine Interfaces in the LCD monitors of a famous car manufacturer.

Challenge

One of the largest automobile manufacturers in the world, whose vehicles are renowned for impeccable quality, equips the cars it exports with LCD monitors with Human Machine Interface (HMI) provided in many different languages. Before being rolled off the assembly line, vehicles have to be tested and checked to the smallest detail, including the contents of the LCD menu.

Until recently, for lack of anything better, LCD monitors with Human Machine Interface had to be examined for errors manually, i.e. with the naked eye. Highly qualified testing engineers wasted time checking contents of the menu simply by visually comparing the symbols on the monitor with the original. The task was complicated by the necessity to perform the same actions for the menus in the languages they had no knowledge of, by verifying the symbols one by one. In fact, manual comparison required additional human resources for several verifications, which were necessary to ensure 100% accuracy of the test results, let alone wasted time and efforts.

Solution

The request was forwarded to BTS Technologies — a leading solutions provider both in Korea and abroad, who excel at hardware and software technologies for automated testing of electronic devices in the cars and electronic vehicles. They have developed solutions for such well-known companies as LG Electronics, Doosan Heavy Industries & Construction, Volvo, and Mando Group.

When BTS Technologies analyzed the challenge, they understood that the best alternative to the naked eye was an artificial one empowered by OCR technologies. ReTIA, ABBYY long-standing partner in South Korea, stepped in and offered ABBYY FineReader Engine which had already proved its worth in similar cases around the world. The offered OCR engine fully satisfied both crucial requirements of the end customer — the quality of recognition and the variety of OCR languages, besides it was apt to easy customization for the existing customer's environment. The experience and technical skills of their own technical team in combination with ReTIA's expertise in ABBYY OCR software, allowed BTS to successfully integrate ABBYY FineReader Engine into their Vision-based Automated Testing System.
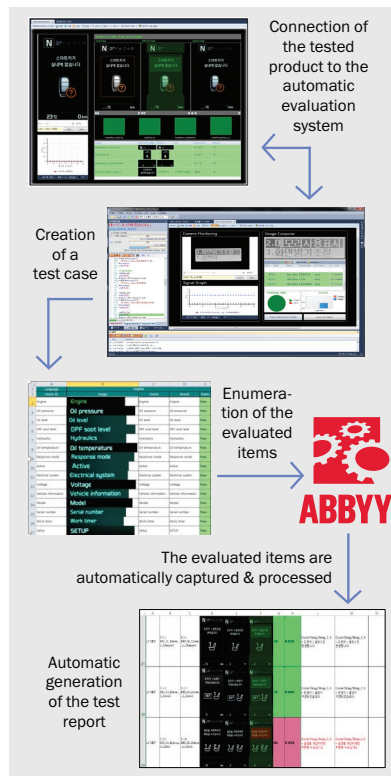
"Before the system was introduced, testing engineers had to verify the text on the monitors with the naked eye, which used to take more than 2 weeks. Automation cut this time to only 3 days, including the final report."

Keiwon Ryu, Senior Research Engineer at BTS technologies

Connection of the tested product to the automatic evaluation system

Creation of a test case

Enumeration of the evaluated items

ABBYY

The evaluated items are automatically captured & processed

Automatic generation of the test report

Total solution includes hardware (NI™ System, Vector) and software (TestExecutor) components introduced by BTS. Now, empowered with ABBYY OCR Engine, Vision-based Automated Testing System recognizes and checks the contents of Human Machine Interfaces of LCD monitors before the cars are shipped off all over the world. Due to the wide geography of sales, part of the challenge was to find a solution that would provide both the whole set of 31 languages and the highest recognition quality in one:

English, Korean, Chinese, Japanese, Spanish, German, French, Italian, Swedish, Norwegian, Brazilian, Portugal, Turkish, Russian, Dutch, Danish, Finnish, Indonesian, Slovenian, Slovak, Polish, Latvian, Lithuanian, Hungarian, Estonian, Greek, Czech, Hebrew, Arabic, Hindi, Thai.

In this particular case ABBYY FineReader Engine turned out to be the most appropriate tool as it supports 202 OCR languages, including the above-mentioned for OCR and dictionary support for most of the languages.

The workflow operates the following way: the tested car LCD monitor is connected to the BTS TestExecutor system > an operator creates a new test case and indicates the evaluated items > ABBYY FineReader Engine reads the content of the screen including pop-up system messages and extracts the necessary items > the extracted data are exported into the testing system with the indicated errors for future verification by the operator.

The solution automatically checks the contents of the menu as well as the messages which come up in the interface of the LCD monitors. Then the BTS vision-based automated testing system compiles a detailed report on the results and errors which have been detected.

Results

Now the improved testing process handles over 500 000 screenshots per year, which now takes up to 10 times less time and provides up to 100% accuracy of test results. Having ABBYY OCR technologies at its core, every day the system automatically examines and equally automatically reports on hundreds of LCD monitors in 31 different languages.

Furthermore, automation of the process and increased reliability of the results freed highly qualified professionals to develop innovations rather than spend time on routine tasks. By implementing this solution, the car manufacturing company one more time proved its adherence to excellence through consistent change and innovation.

About ABBYY

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