

ABBYY® Recognition Server



ABBYY software unveiled at the Rotterdam Museum of Modern Art

The Background

Simon Heijdens is a world-renowned Dutch light installation artist. Trained in design and experimental film, his work is displayed in galleries across the globe and commissioned by companies like Swarovski for its ability to introduce nature and feeling into an artificial space. Heijdens uses light and projection to express a fascination with the role objects play in our society, and how our perceptions of those objects can change. He integrates technology with subtle design to give artificial objects a natural character, and re-introduce time and change to an otherwise static space.

Heijdens' latest work, titled 'Wordweaving' and on show in the Espresso Café at the Rotterdam Museum of Modern Art, presented particular technology challenges. In addition to designing the space and the furniture, Heijdens wanted to create an artwork that used people passing through the café as its subjects. He saw the café tables as surfaces for dialogue that information passed quickly across in the form of newspaper headlines, brochures or even cigarette packets. Heijdens wanted to record those small pieces of information, as he believed they told a lot about that moment in time. He wanted to create a living record of the café's history, so the tables could tell their own story.

"What if a table could be an archive of its own use?" asks Heijdens. "My work is about breaking the static nature of architecture. I make incisions in a space to show what it has experienced, and listen to how it has been used. I no longer wanted people to pass through the café and leave again without a trace. I wanted to make what happened there stick," he said.



The Challenge

Heijdens' work involved the installation of motion sensors above eight café tables. When anything was placed on a table, the sensors triggered a camera to take images. Heijdens then needed software to read and decipher any text in the images, which would be extracted and projected onto the ceiling directly above the table. The words would be woven into a circle which would grow, row by row, each time a new piece of information came into view. Busier tables would therefore have larger circles, and less used tables smaller.

The challenge was that most text was difficult to read, as it was either unclear, very small, at an angle or even upside-down.

About Simon Heijdens

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Contact

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ABBYY® Product

"Clarity was a big issue," said Heijdens. "It is less complicated to read an A4 piece of paper that says 'hello.' I needed software intelligent enough to read imperfect text, and I needed it to do that all on its own."

As the work is a permanent addition to the café, it had to be able to manage and run itself without any intervention or maintenance from Heijdens at all. Large amounts of data would need to be processed at peak traffic times in the café – as many as 32 images every five seconds – so the system needed to be robust enough to manage that load completely independently.

"The work was a very public display of art and software, so it couldn't fail," said Heijdens. "I was also working with quite a few different elements, from the motion detection, image capture and character recognition process through to the actual projection. Making all these elements work together was a challenge."

The Solution

Heijdens reviewed several solutions from several optical character recognition (OCR) providers. OCR software takes images of texts and converts the images into computer text which can be added and used in a variety of formats. Heijdens contacted ABBYY in July 2008. He immediately trialled the ABBYY Recognition Server 2.0 Professional Edition, and one month later finished implementing and fine tuning the software to meet the specific needs of his work.

"I looked at five or six packages from different providers, but the ABBYY solution was head and shoulders above the rest," said Heijdens. "It was unbelievably clearer and more accurate than anything else I had seen."

Images of the tables were sent directly to the Recognition Server 2.0, where ABBYY software was able to detect any text they contained. The software cleaned the images, corrected any imperfect words and converted them into flat, searchable text. The text was then sent to another Linux server to be weaved into the circle and projected onto the ceiling.

Text was also sent to the cash register of the café, where words from that moment could be printed across the bottom of the customers receipt. The receipt then became a part of the artwork, and a souvenir the customer could take away.

"The system runs across two platforms, from the OCR engine on the Windows Recognition Server to the display technology on the Linux server," said Jupp Stoepetie, CEO of ABBYY Europe. "The whole integration was extremely straight forward, so much so that Simon was able to set up the whole thing himself. In fact, the first time an ABBYY representative went to the site was to see the unveiling of the work. The set-up was so simple ABBYY's technical assistance just wasn't needed.

"Automated fault tolerance was also part of the solution," continued Jupp Stoepetie. "The system can intelligently distribute work, and identify if it is not getting done. If there is an issue, it will simply re-distribute that work to bypass the blockage. It's tolerant to computer systems failing underneath it, and can correct itself without the need for human interference."

The Outcome

'Wordweaving' was successfully unveiled to the public on 27 September 2008 to a crowd of 3,000 that weekend. It is still a very popular exhibit, and since installation has processed huge amounts of data without issue and with minimal maintenance or support from Heijdens of any kind.

"The ABBYY solution just does the job really well," said Heijdens. "It means I can get on with my next work, rather than worrying whether or not the software is working. Occasionally I check the remote monitoring console to see how it's going, but I don't need to do that often," he said.

Over time, the circles have grown into an extensive archive of information that captures the imagination of passers by and engrosses customers in the café.

"When Simon first contacted me, I was enthralled by the idea of someone putting hard text recognition into a piece of art," said Jupp Stoepetie. "I felt immediately that the Recognition Server was the right tool for the job, as it is flexible and robust enough to meet all Simon's needs."

"I think the whole concept of what he has done is groundbreaking. He has brought together two completely opposing camps, technology and art, which would not usually have met before. That is a feat in itself," said Jupp Stoepetie.

'Wordweaving' is on display permanently at the Rotterdam Museum of Modern Art. Other works by Heijdens can be found at <http://www.simonheijdens.com>

About ABBYY

ABBYY is a leading developer of document recognition, document conversion, data capture and linguistics technologies.

ABBYY's products include: FineReader and PDF Transformer – end-user applications for document conversion; Recognition Server – a server-based OCR and PDF conversion solution; FlexiCapture and FormReader – data capture programs for processing forms, semi-structured and unstructured documents; FineReader Engine SDKs that provide a full spectrum of ABBYY's recognition technologies; and Lingvo – a line of dictionary software.

More information about ABBYY at www.ABBYY.com