



Karbala has High IQ

iOmniscient's IQ Series deployed for managing extreme crowds

iOmniscient's IQ-Series Intelligent Video Analytics deployed at Al-Attaba Al-Abbasiya Holy Shrine in Karbala city of Iraq to protect millions of devotees

The Holy Shrine of Al-Attaba Al-Abbasiya in Karbala in Iraq is considered one of the holiest and most sacred places for Shia Muslims. Dedicated to Imam Al-Abbas, the shrine is visited by millions of visitors every year. It is manned by more than 3000 professional staff and tens of thousands of volunteers. The shrine provides services to tens of thousands of visitors every day and recently it received 17 million people within 10 days period.

In Karbala there are daily threats of terrorist attacks. Providing protection and security for the huge number of devotees in the small area inside and surrounding the mosque was the biggest challenge and concern for the management of the Holy Shrine.

iOmniscient has worked with its partner, Al-Moashour Co, an Information Technology pioneer in Iraq, to deploy a robust video analytics system which can meet the customer's stringent requirements.

To protect all visitors, hundreds of CCTV cameras were installed by the shrine. The requirement was to enable these cameras with a powerful and intelligent video analysis system that could cope with their crowded environment. The most critical applications for them were facial recognition in a crowd, people counting, crowd management, abandoned object detection in a crowd, License Plate Recognition, Driver Match for vehicles entering the area and many other important features.

"To reduce the terrorist risk, the shrine searched and evaluated many companies that provide video analytics solutions from around the world. iOmniscient was selected as it provided the most comprehensive video analytics solutions," said Eng. Firas Abbas



"Al-Attaba holy shrine is a very crowded place. It was very difficult to find a system that can work in this environment and still give good results with acceptable accuracies. Many systems were investigated. iOmniscient's IQ system was selected after extensive tests of over one year. The system proved to be robust and accurate", added Eng Firas..

iOmniscient's advanced systems have the unmatched capability for analyzing realistic, complex and extremely crowded spaces based on its internationally patented technologies. All iOmniscient systems are armed with the Artificial Intelligence based Nuisance Alarm Minimization System (NAMS) to help eliminate false alarms while still maintaining good accuracy.

Discussion with the CEO, Dr. Rustom Kanga

iOmniNews: **iOmniscient has been around for a long time now. It's one of the pioneers in Video Analysis. Are you continuing to accumulate customers?**

Rustom : The Company was founded in 2001 and for many years before that work had been done on the core technologies that we use.

Recently some markets such as Europe have been quite affected by the financial crisis but overall we have been able to maintain our high growth rate. North America has started moving again - the Empire State Building, the Prison System in Vancouver, the Port Metro there and the University of San Francisco have joined our family of users in America within the last six months. In the Middle East we won the project for the Al-Attaba Al-Abbasiya Holy Shrine in Karbala city of Iraq, the Abu Dhabi Investment Authority Building and for an ATM anti-fraud system for the Bank of Qatar; in Asia Pacific we have now started implementation of the Singapore Safe City Test bed and the refurbishment of the Suntec Exhibition Center. At Canberra Airport we have recently completed implementation of an Exit Race project. And in Europe we are about to start a railway project with our partner Siemens. Those are just a few of the new customers in the recent past.

iOmniNews: **What are the technologies that are driving this ongoing growth?**

Rustom : The main difference between our technology and all others is that we focus on Crowded and Complex scenes. Most problems occur in crowded scenes. If a terrorist is going to leave a bomb, he is not going to do it in a place that is empty – they will leave it where it will do most damage which is in a crowd. If a criminal is trying to hide he will attempt to blend into a crowd. Dealing with crowded scenes is the reality for most difficult security situations. That is why many of our patents are focused on doing things in crowded scenes.

iOmniNews: **There is talk these days of new Continuous Learning Systems which do not require any manual configuration. Have you looked at this technology yourself?**

Rustom : Continuous learning technology otherwise known as neural networks and Heuristic Technology which focus on rule based systems are two branches of artificial intelligence technology that have been around for a long time. Each has its strengths and weaknesses as you can see in our White Paper on this subject. In some fields such as License Plate Recognition, neural network is the appropriate technology to use. This is not true for other areas such as behavior analysis. We have been using a hybrid that combines the strengths of both types of technologies while minimizing the weaknesses. So our system is a continuously learning system in various aspects of its operations but where it makes more sense to use rule based technologies, we do that too.

iOmniNews: **What are the disadvantages of pure Continuous Learning Systems of the type that have recently emerged on the market?**

Rustom : There are several. First of all a system based purely on Continuous Learning can take a long time to learn what is considered to be normal behavior before it can become operational. We are talking about weeks and months. By using a hybrid system we reduce this learning time to seconds or minutes. If there is a major change it has to start learning the environment all over again.

Another problem is that it cannot react to sudden changes in conditions. Let me give you an example. Assume there is a one way road and all the traffic always moves in a single direction. The system can be taught to understand this and all vehicles that move in the wrong direction would generate an alarm. Now consider the situation where there are some road works ahead and all traffic is made to travel in the opposite direction for a few hours. This is the new normal. In a system that also uses rule based heuristic technology we can just advise the system that the rule has changed and all traffic will now travel in the opposite direction. A continuous learning system cannot react quickly to such a change.

iOmniNews: **What about the Crowded Scenes that you mentioned?**

Rustom : Coping with Crowded scenes certainly requires some very sophisticated (and patented) heuristic technology. Even for these we would use continuous learning in some aspects of the system. However a system that relies purely on neural networks cannot cope well with such scenes.

iOmniNews: **I presume you are still talking about behavior analysis.**

Rustom : Yes. iOmniscient of course goes beyond behavior analysis. We do analysis of sound and smell; we can recognize vehicles and people in crowds. And most of these involve technologies that are not possible with purely Continuous Learning systems.

iOmniNews: **In the last year you have put a lot of effort into Smart Cities. Why?**

Rustom : Previously we had built solutions for different interest groups such as the Police or the Traffic department or the Metro. The concept of the Smart City is to bring together all these solutions for different stake holders in an integrated way with a focus on increasing the efficiency and productivity of all the groups involved. This is something we are doing in several major cities.

iOmniNews: **Do cities have the money to do this in a recessionary environment?**

Rustom : Several of our technologies have been specially designed to tangibly reduce the overall cost of a system by significantly reducing the computing, storage and network bandwidth requirement. We have enabled the managers of cities to greatly improve productivity, reduce costs and improve the level of service that they provide their citizens. The benefit is very tangible. We save them money relative to all the alternative technologies available today. And we help them make money. The demand for better service at reduced costs is universal. Traditionally security is a cost and hence it is difficult to justify. But the business case they can build with our technology is very compelling.

Winner - Global Security Challenge for Crowded Places