WHITE PAPER

Why Video Analytics Projects Fail

A large proportion of Video Analytics Projects fail usually resulting in finger pointing by everyone involved.

In our experience a majority of project failures result from two main issues.

1. The Wrong Software
2. Incorrect Cameras and Camera Placement.

Wrong Software

As the terms Artificial Intelligence and Video Analytics become more popularly recognized large numbers of suppliers have entered the market offering everything from Face Recognition to Behaviour Analysis. The technology is taught at many Universities and many individuals have felt that they could use this information to build and market a system.

Unfortunately, most of them have not realized that for systems to be useful they have to be robust. They have to be able to operate in real world environments which are often crowded and complex. They have to cope with varying environmental conditions.

There are, however, no universal tests that can help to differentiate simple and complex situations. The available tests such as iLIDS and NIST are designed for relatively simple situations.

A major airport released a tender for detecting abandoned objects. Many people bid and there was a significant price difference between the suppliers. They purchased the least expensive system and the system just could not detect abandoned objects. On complaining to the supplier they were asked to do a test – empty the area, leave a bag and the system would detect it.

The airport complained that this was not a realistic scenario as airports are invariably crowded and one needs to detect the abandoned bag in a crowd. However, they found that the supplier had legally met their requirements because the airport had not specifically asked for the detection to be performed in a crowd.

If in its requirements the airport had said that the system needed to "detect bags in a crowd even when the bag is obscured for significant periods of time" then they would have eliminated all the shoddy suppliers and got a system that would have actually addressed their problem.

There are a couple of things that users can do namely:

- Ensure that the system is explicitly armed with an artificial intelligence based NAMS system (Nuisance Alarm Minimization System)for minimizing false alarms.
- Check and get evidence that the system can work in real life crowded environments.

Incorrect Cameras and Camera Placement

Even if the user has selected the most appropriate video analytics system there is a risk that the project may not be successful if the correct implementation process is not followed

The process to be followed for a successful implementation is:

1. Define the objective for having a camera in a particular location.
2. Choose the analytics to meet that objective.
3. Select the appropriate camera to meet the needs of the analytics.
4. Design the hardware and network infrastructure to run the system
5. Implement

Many users start at step 3. They get to Step 5 and then attempt to retrofit Steps 1 and 2.

This is a risky strategy for the customer. He could very well end up purchasing the wrong cameras and placing them incorrectly making it impossible to do video analytics.

It is strongly recommended that the first step has to be to determine the objective of each camera and to then determine the analytics required to meet those objectives. And only once this has been decided should the decision be taken on cameras to use and where to place them.

WRONG CAMERA

A large user in an Asian country installed 450 cameras. They were all very good cameras but they just were not the right cameras for the tasks they wished to perform later. To implement a system that would work for them they had to rip them out and start again.

What was wrong?

1. They wanted to do Face Recognition on some cameras at a distance of 20 to 30m. The cameras had a resolution of 2 megapixels and they had a 2.8 to 12mm lens. The resolution was satisfactory but to do recognition at 20m they needed a 22 to 50mm lens.
2. On the road outside they wished to recognize the plates of vehicles that passed by at speed. They used 4xCIF (approximately 0.4 megapixel)cameras for this and these would have worked well at ground level where the vehicle was a couple of meters away. Because of the shape of the building they had to place the cameras at a significant height and at that height the numbers on the plate were too small to read. Also because of the height the view of the plate was too angled for a good view. They had to replace the cameras with a higher resolution camera with a less angled view.

SOME FREQUENTLY ASKED QUESTIONS

But what about existing sites which have existing cameras?

The cameras are the eyes. The analytics system is the brain. If the eyes cannot see clearly the brain can do little. In such situations it becomes imperative to do an analysis on the existing cameras and determine what the objective of having them there was. This must then be followed by the remaining 4 steps in order.

This is intuitive. Why would users not follow such a process?

Users are often under sales pressure from camera suppliers, network suppliers, computer hardware suppliers and others to purchase their equipment first. They may emphasize the great features that their products have. However, while these features may be great they may not necessarily appropriate for the analytics that need to be performed.

What if the user only wants to implement a recording system in the first instance, and will consider analytics later?

First, a rational user would not make such a decision because with the availability of the latest Smart Compression technology it is less expensive to implement an Intelligent system than it is to implement a simple recording system.

Further, if the user wishes to implement an advanced analytics solution with an automated response capability then the decision to implement analytics must always precede the VMS decision to avoid unnecessary latency being built into the system.

Summary

Some organizations are consistently able to achieve successful implementations. There is no magic involved. Choosing the right software and following the right implementation process is all that it takes.

On the other hand, if the organization selects the wrong software and does not follow the right process they will indeed require magic to achieve a successful outcome.