IVC APPLICATION NOTE:

Assembly Line Quality Monitoring

In the competitive worldwide car market, manufacturers are always looking for ways to improve product quality and gain an edge on the competition. Even the robots in today's highly automated assembly lines can make a mistake. That is why a major manufacturer decided to put some "eyes" on one of its body assembly lines. Using IVC IP video systems, this was done at a fraction of the cost of traditional machine vision systems.

In one part of the plant, body panels are affixed to the car's chassis. In this manufacturing cell, right and left body panels are attached to the chassis simultaneously. In order to more closely monitor product quality, two IVC indoor fixed IP-cameras are installed at each cell. One camera on each side of the cell is connected to a dedicated video network installed in the plant. After the body panels are installed, the chassis continues through the cell causing a contact closure. Wired to one of the cameras, this contact closure will cause the camera to initiate an alarm message on to the network. The IVC Alarm Server software, running on a PC also connected to the dedicated video network, is configured to "listen" for messages from these cameras. It parses them to determine the source of the alarm and what user configured responses to execute as a result. In this application, commands are issued to have both cameras in the cell start recording. As the vehicle leaves the assembly cell, another contact closure connected to the other IVC camera generates an alarm message to stop recording. The Quality Control department now has an automated inspection video of each vehicle that can immediately be analyzed should problems be detected later down the assembly line.

On the same assembly line, an indoor IVC 10x PTZ camera is installed in the windshield installation cell. As before, the entrance of the vehicle into the cell initiates an alarm message that the IVC Alarm Server software parses. In addition to initiating recording, the response commands include camera movements to preset positions so crucial aspects of the windshield installation are recorded. A user defined dwell time specifies how long the system records at each preset. The QC department ends up with a video record of the installation of each vehicle's windshield that can be reviewed seconds, minutes, hours, or days later.

The IVC Alarm Server software is a component of IVC's View Station software. The View Station desktop is used to identify alarm sources and corresponding alarm responses. In addition to initiating camera commands, alarm responses can include almost any command script to any application or device that exists on the video network. The video is played back in user-customized View Station displays. Additionally, the saved video segments can be saved as AVIs for archiving on CD or DVD.

The key decision points for this auto manufacturer were:

- Flexibility of IVC's software-based approach; ability to handle a large number of alarms with virtually no limitations on alarm responses
- Configurable viewer software in order to customize screens to meet specific operator console requirements
- Broad selection of cameras to meet any requirement on the assembly line
- Scalability of system; easy to add cameras to other cells on assembly line

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