Fire Alarm System and Remote Monitoring Sytem in Shoe Factory in Indonesia

The system should can be monitored remotely and has several features such as alarm management, auto reporting, connected to many client computers without additional cost, and run 24/7 without fails.

Introduction:

Fire alarm systems are essential in providing an early warning in the event of fire and can help save lives and protect property whilst also fulfilling the needs of insurance companies and government departments.Fire alarm systems typically consist of several inter-linked components, such as smoke detectors, heat detector, carbon monoxide, manual call points, sounders, alarm and buzzer. The fire alarm system should give immediate information in order to prevent the fire spread and protect live and property. To get maximum protection a shoe company in Indonesia proposed a fire alarm system to monitor 13 production sites spread over 160 hectars.

System Requirement:

Although the factory had an existing fire alarm system, it could not be monitored remotely. It was essential that the new system would be able to be monitored from a central control room. The user also needed a system which could be implemented without changing the architecture of the existing fire alarm system.

The proposed system needed to be able to be connected to the existing smoke detector and manual call point. The information should be able to easily collect and pass to Supervisory Control and Data Acquisition (SCADA) system. The system should can be monitored remotely and has several features such as alarm management, auto reporting, connected to many client computers without additional cost, and run 24/7 without fails.

System Implementation:

The system needed to use a smoke detector or manual call points to detect and inform the system of the presence of a fire. This information was then delivered to the fire alarm system using a remote I/O ADAM-6000 via Ethernet. The ADAM-6000?s are 8-channel thermocouple input modules used to monitor temperature. They come with 8 T/C input channels and 8 digital output channels. To connect to field sensors and enhance the accuracy and reliability for thermocouple measurement it also comes with an external DIN-rail terminal boardforwiringto the field sensor.

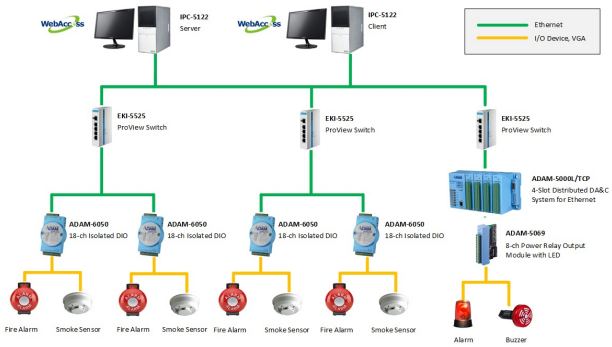
EKI-5525 ProView switches are used to connect the fire alarm system and provide the information about status and speed connection for each port. They are the world?s first convergence switches for process control and IT networking management. They use Modbus/TCP to communicate with the SCADA software and SNMP to communicate with NMS (Networking Management System) at the same time, thereby allowing full read control over the devices either for control engineers or for IT. The devices come with the Port-based QoS for deterministic data transmission allows the priority ports to prioritize the traffic coming over those ports and delay the less immediately necessary data over the remaining ports

The information is collected inan IPC-5122 industrial panel PC server. Advantech WebAccess SCADA software is installed in this server and record the historical log in. Going beyond SCADA, WebAccess 8.x is also a HTML5 Business Intelligent Dashboard which can be opened from anywhere on any HTML5compatible browser. The Business Intelligent Dashboard analyses data and helps managers make decisions as to what to do and WebAccess 8.x also provides developers with the tools to design their own widgets and applications and the integration of Microsoft Excel reports. Included is a set of Excel templates or users can build their own report templates to generate daily, weekly, monthly and yearly reports to help

predict the status of equipment.

Through HTML5, a limitless number of users, with varying access levels are able to read information and make changes from wherever they are using either the Internet or Intranet.If the system find that fire is detected, then early warning system is controlled by ADAM-5000L/TCP Ethernet-based I/O system allows remote configuration via Ethernet and eight PCs can simultaneously access the data and the ADAM-5069 that announces by alarm and buzzer. The ADAM-5069 is designed for on/off control in high-voltage applications. Its major feature is the power relay rating at 240 VAC and 5 A. This range can satisfy most requirements for driving externally controlled devices such as lights, fans, alarm systems, and various electronic devices in industrial automation, security, building and home automation applications. To easily identify the module?s status, it has been designed with 8 LED indicators.

System Diagram



Conclusion:

The goal for a fire alarm system is to give an early warning system about the presence of fire and give maximum protection to save livesand protect property. Because of itsease of installation and the ability to be able to be monitored from a central control room using WebAccess?s remote monitoring and management, alarm functions Advantech?s solution was chosen.