AN INTEGRATED SYSTEM FOR PHYSICAL PROTECTION

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An Integrated Physical Protection System (IPPS) was developed for the consolidation of all sub systems, sensors and elements related to physical protection for an efficient and effective security environment of a facility. An effective physical protection system discharges the functions of detection, delay, communication, response, access control etc. IPPS performs, controls and monitors all the above functionality and helps in taking quick action on occurrence of unusual incidents by instantly reporting the incident in easily understandable audio, video, graphical and textual format and also by initiating automatic interactions among sub-systems.

Major security sub-systems integrated in the IPPS are access control, intrusion detection, CCTV surveillance, emergency door monitoring system etc. The access control sub-system utilize intelligent card readers and interfaces with the PC based central controller through RS 485 communication network. Similarly, intrusion detection system utilize intelligent distributed I/O controllers for alarm acquisition from field sensors / detectors etc. and communicate to the IPPS through RS485 bus network CCTV system is controlled by using a dedicated controller which performs the functionality of matrix switcher and camera control. The distributed CCTV controller interfaces with the IPPS by RS232 serial interface. All the sub-systems are modular in nature and can work stand alone without the IPPS. IPPS also monitors individual sub-systems and indicate their health status on-line. Fig.1 gives the overall schematic of the IPPS.

One of the major function of IPPS is to facilitate automatic interaction among sub-systems so that occurrence of an event in one component can initiate a series of actions in one or many sub-systems. For example, an intruder alarm can cause homing of video camera of the specified zone and start recording the scene in the VCR. It is possible to define any input event as logical 'AND' or 'OR' of two or more independent input events.

Data originating from all sub-systems are integrated and presented to user in easily comprehensible format (tabular, graphical, audio, textual) on demand. However, appropriate level of protection is applied to prevent unauthorized access and use of data.

The IPPS was on IBM-PC platform under QNX real time operating system (RTOS) and uses QNX-Windows GUI.
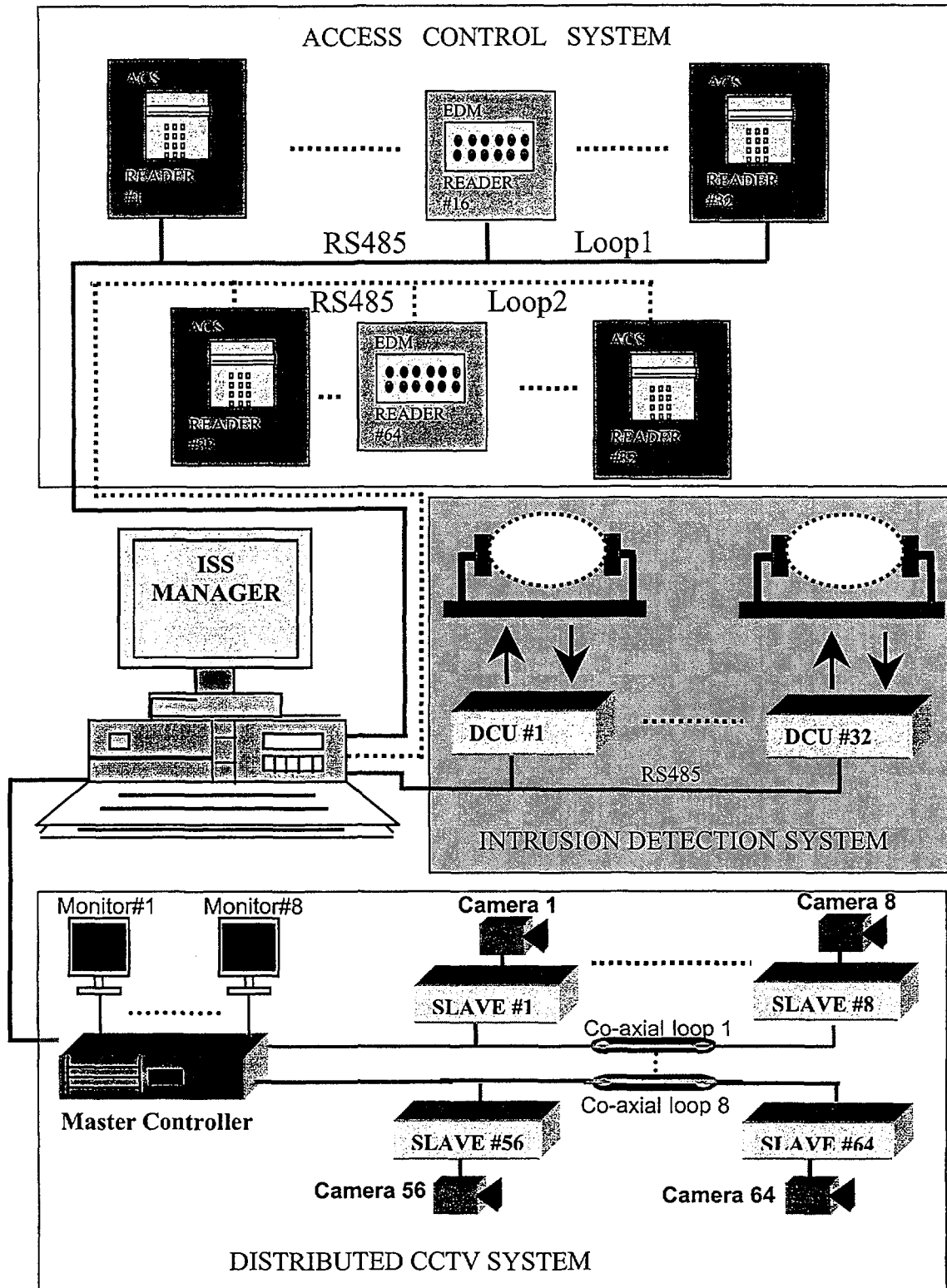
FIG 1.   SCHEMATIC OF INTEGRATED PHYSICAL PROTECTION SYSTEM