



AN-400 Implementing Automated Staff Tracking

In Brief

Tracking the attendance of staff in shopping centres (security staff, cleaners, maintenance staff) has always had a number of steps that had to be followed to generate a printed or eMailed report.

This quite often consumed significant staff time and also caused the reports to not be available till a significant time after being logged so that it was impossible to obtain real time or even near real time information about staff movements.

In 2007 Elite-ID Electronic Systems released the “identiMESH” automatic system that performs all tasks necessary for staff tracking, performance monitoring, real time reporting and data archiving.

Equipment Overview

There are five main component sections to the full identiMESH system;

1. Data logging equipment comprising Mesh Data Wands, Pulsars and iButtons™. These collect data about staff movement and store the data into their internal memories.
2. Network data extraction devices called “Mesh Unloaders”. These devices operate in two ways; automatic extraction of data from nearby Mesh Wands and a Mesh Network section that transports the data back to a data engine via the Mesh Network.
3. A Network Connection device called “Mesh Base Station”. This connects the PC to the Mesh data network.
4. Network range extension units called “Mesh Routers”. These are required to extend the size of a system to suit even the largest of areas. They act as “relay stations”.
5. A Data Engine. This collects information from the network of equipment, databases, stores, archives, analyses, reports and informs users about performance.

The result of these components is an attendance verification system that captures, networks, collects, stores and reports all automatically.

Operational Overview

Please note that whilst these activities may seem complicated, the system is automated, fast and powerful. It has been developed to make life easier and to provide new facilities never before possible.

Typically;

- Staff performing their normal duties carry a Mesh Wand.
- As they pass near to a Pulsar the signal from the Pulsar is logged into the memory of the Mesh Wand.
- Similarly, if they use the Mesh Wand to touch onto an iButton™ that data is also logged into the Mesh Wand.
- To the user, the operation of the Mesh Wand has not changed compared to the use of a Radio Wand or an XL Data Wand. It appears to be “just the same”.
- However, as they move around the area they will regularly come into proximity of a Mesh Unloader unit.
- Typically a large retail area has a quantity of Mesh Unloaders spread around so that staff are often in proximity to one of them.
- When near, the Mesh Unloader automatically extracts data from the Mesh Wand(s) and stores it into its internal memory.
- The Mesh Unloader also checks battery, clock and performs simple diagnostic functions and tests at the same time.
- In this way, as staff move around the area their data is constantly being collected than extracted from the Mesh Wands.
- The more often they are in proximity to a Mesh Unloader, the more often data is extracted and the more “real time” the system becomes.
- At the same time, a central “data engine”, often a PC with custom software, constantly extracts data from the network of Mesh Unloaders. This uses the “Mesh Network” to connect all the equipment together into a network.
- Since many areas that are monitored are quite large the signals between all the units can be extended with Mesh Routers. These allow the creation of large systems.
- The data engine extracts data from all the Mesh Unloaders and automatically data-bases it into the PC. At a nominated time, the data is optionally eMailed to an external archive address.
- At the same time, data is analysed and reports are generated. Note – all this is automatic – data collection – extraction – archiving - data-basing – reporting.
- No user intervention is required other than setting up location names, setting performance criteria, setting up eMail and other program options.

- The identiMESH PC program generates (according to the users configurations) a number of messages that can be sent via eMail to nominated addresses.
- These messages warn of performance problems as they happen so users can take corrective action in a timely fashion instead of finding out the next day or later.
- Some messages take the form of “exceptions” – meaning that a performance has not met a set criteria. Additionally, if after a period of time the performance has not improved, an “escalation” message can be generated and sent to additional addresses. In this way the complete system closely monitors and manages a complete site or shopping centre.
- The “identiMESH” program includes logic to wherever possible “batch” messages together so as to reduce the quantity of messages sent.
- At a nominated time a status message will also be generated and sent, for example, to an off-site supervisor advising about

Related application notes;

“AN-401 Benefits of Automated Staff Attendance Tracking”

“AN-470 All about the MESH system”