The Telepen Attendance System

Overview

The Telepen Attendance System (TAS) is used primarily to record the attendance of individual students to lectures and tutorials. Each student carries an RFID card, and the attendance is recorded by reading the card’s Unique Identification (UID).

The system is also designed to record other event types. These could include, for example, exit from lectures and the receipt of course work.

Two device types are used to collect the data: fixed controllers in wall boxes (known as TACIMs) provide online collection, and portable CipherLab 9500 data terminals provide either offline batch collection, or online collection using WiFi. The TACIMs are permanently installed at selected locations, and the 9500 units may be used anywhere. In either case the collected data is used to create event records that are written to a SQL database. The detailed analysis of these events is not handled by the system; external processes that interface to the SQL database may be used implement this. However, a search on events by any combination of date range, event type, location and card number is provided, and the results are shown in a simple grid display.

System Architecture

The main components of the system are as follows:

- SQL Database. The SQL server software runs on a Windows or Linux server box. The database includes tables for Locations, TACIMs, Event Types and Events.
- TACIMs. Each unit is housed in a wall box and is equipped with an RFID card reader. The TACIMs send event messages to the TAS application in real time. If communications fail, they store and time-stamp events for subsequent transmission on communications recovery.
- Administration PC. This PC runs the main TAS application software.
- TAS Application Software. The application provides database maintenance screens for Location, Event Type and TACIM records. It also establishes connections to the TACIM units and processes event messages received from them in real time. It writes event records derived from these messages to the database. It also periodically checks for event data files received from the 9500 units and writes the events to the database.
- Batch/Online Collection Application Software. This application is used to send and receive data files to and from the portable 9500 devices using a USB connection (batch) or WiFi.
- CipherLab 9500 Portable Data Terminals. The terminals run Windows CE 5.0 and are each equipped with a colour touch screen and RFID reader. They collect and time-stamp events for batch or online WiFi transmission. Separate programs for batch and WiFi are available.