



Lottery Ticket Vending Machines

Background

Bolton Engineering had designed the client's first generation instant ticket vending machine. Although the machine had proven highly reliable with over two-and-a-half million total hours of operation over three years without hardware or software failures, it was not versatile enough to meet the needs of the increasingly sophisticated Lottery Commissions.

System Overview

The new system was designed for ease-of-repair, modularity and expandability. All control logic was placed on a single card that plugs into a separate wiring distribution board, allowing the controller to be replaced in under a minute without having to disconnect and reconnect all interior cabling.

Operators configure the machine through the *Keyboard and Display Board*. Twelve dedicated function keys simplify the user interface. Operators obtain accounting and sales information through a two by sixteen character LCD backlit display or an optional thermal printer.

An optional *Alarm Board* provides forced entry and tilt alarms for up to four months after power loss.

The system includes several levels of hardware and software protection to prevent the machine from erroneously dispensing tickets in the event of hardware or software failure.

Results

- Maintained reliability and security of first generation system.
- Increased flexibility by adding communication and expansion ports.
- Added feature programmability while maintaining a simple user-interface.
- Increased number of ticket dispensers from three to six.
- Lengthened lifetime of battery-powered alarm.
- Simplified system wiring.
- Reduced board replacement time.
- Incorporated sophisticated accounting features.
- Increased flexibility by writing modular software in high-level language ('C').

Project Scope

Bolton Engineering wrote the specification, the schematics, obtained vendor quotes, developed the circuit boards, constructed prototype boards, wrote diagnostic and control software, debugged the system, and supported regulatory certifications. Three sets of fully functional boards were delivered to the client.