

WHAT DO I DO WHEN THE SCREEN GOES DARK?

MONITORING CONDO and APARTMENT ENTRANCE PANEL CAMERAS USING THE INTERNET

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INTRODUCTION:

Condominiums and Apartment houses aka multiple dwelling units (MDUs) face two major problems related to unauthorized access – one of which they are well aware of and one that they are probably not. The former is the ongoing problem of ‘tailgating’ by non-residents both on foot and by vehicle. Tailgaters follow residents entering secure garages in their automobile and on foot. The solution for this problem will be covered in detail in a future article. It will require the implementation of the security equipment updates discussed in this article.

The second and most critical problem may impact MDUs next February 17th when the FCC requires that all airwave TV broadcasting be in digital ⁽¹⁾ format. Many condominiums and apartment complexes have legacy coaxial cable TV systems that were specifically designed for the insertion of one or more unused TV channels in their lineup. These custom channel(s) display to the residents on their home TV a restricted field of view surrounding the entrance buzzer panel(s). In most cases, residents can also monitor street activity when the MDU fronts on a busy street. When responding to a telephone call from the entrance panel, the resident can determine the identity of the visitor.

THE PROBLEM:

Although cable companies are not constrained by over-the-airwave analog channel restrictions, they may just take this opportunity to reduce or eliminate their analog channel transmissions as a means of converting their customers to all-digital ⁽²⁾. Since 2 or 3 digital channels can be transmitted in the frequency band taken by one analog channel, most cable operators will probably drop all analog channels above 30. This will allow them to offer their customers a broader TV lineup, including more bandwidth-hogging high definition (HD) channels. Carriers will then provide an appropriate digital set-top-box (STB) for their customers. MDUs should consult their cable provider to determine the vendor’s proposed plans. At the time this article went to press, in the Seattle area (Eastside) Comcast has only committed to continuation of support for analog channels below 31 and only through February 2010. It will be the MDU’s responsibility (at their own expense) to convert their channels to appear below 31 and to bear the cost of this conversion. The MDU must also decide which channels to forego in their place. Elsewhere in the US, cable operators may adopt different strategies ⁽³⁾.

THE BEST SOLUTION: USE THE INTERNET

Should your local cable operator elect to discontinue analog transmission of your entrance panel camera TV channel(s) throughout your complex, one option is to purchase

and implement a digital channel insertion filter for each panel camera. The cost will be approximately \$4,000 per channel. A better solution is to convert the video streams to digital and transmit the video via the Internet. Most MDU residents today, including empty-nesters, are computer literate and have their own PCs with an Internet connection. SecuraCorp, an Eastside-based software and consulting firm, has developed the software tools required to solve this Internet solution, partially funded by research grants from the U.S. Dept. of Homeland Security. The solution, called the GA-1 Application Kit for ABORGuard™ (Algorithm-Based Object Recognition and Tracking) software, costs under \$1,000 per channel. The solution has the added optional advantage that visitors can be monitored and gates opened from a remote location.

HOW DOES IT WORK:

The major components of the GA1 upgrade kit are as follows (see Figure 1):

- A. Pinhole miniature camera(s) (Buzzer-CAM) located at the vehicle entrance keypads or at pedestrian buzzer panels. The panels are usually an existing (legacy) component and will likely be a low-resolution monochrome (B/W) camera. An optional \$300 high resolution Sony color kit upgrade is available that fits inside the access panel from most vendors (See Figure 2). Buzzer-CAMs may be added to panels that do not have a CAM if coax cabling is available or can easily be installed.
- B. Entrance Gate Controller – unchanged for this application. A spare contact closure will be required for the solution of Tailgating.
- F. TV Mixer – Inserts analog camera channels into local TV menu. This device will probably become obsolete.
- H. Analog/Digital Converter - converts NTSC (TV-compatible) analog camera signals into Internet Protocol (IP)-compatible digital streams. This converter is available in multiples of 1 or 4 channels. For large installations, rack-mounted converter boards are available. The RJ45 output of this converter plugs into a standard network switch or router (not shown but provided with the GA1 kit). Additional IP-based camera video streams located throughout the MDU complex may be merged with those of the Buzzer-CAMs inside the electrical room.
- I. Legacy Analog Televisions – may be recycled after the GA1 kit has been installed.
- J. Home PC, laptop, or Ultra Mobile PC (UMPC) – will run a small client version of the SecuraCorp software. (up to a maximum of 20 simultaneous users for each Buzzer-CAM). The display of assigned Buzzer-CAMs is initiated by clicking on a desktop icon. ABORGuard™ loads and runs instantly. The screen will display from 1 to n camera windows, one for each buzzer panel that condo management or the Board of Directors has authorized this resident to view. The user opens the gate by clicking on another icon and then closes ABORGuard™ when finished.

K. Management Computer or Laptop – located at any of the following locations:

- Condo Management Office, Sales Office, or Facility Manager’s Office.
- Manager runs the MDU version of the ABORGuard™ software:
 - Automatically identifies local cameras.
 - Configures cameras for window size, rotation angle, etc.
 - Manager selects camera user names & passwords for resident access to each camera, tests cameras, & more.
 - Selects cameras for monitoring by off-site managers, police, and 3rd party service provider.

ADVANTAGES OF DIGITAL OVER ANALOG LEGACY STREAMING

- Protects against the obsolescing of your hardware investment.
- Cost is under \$1000 per buzzer panel, dependant upon options chosen.
- Monitoring of buzzer panels by residents can be done remotely (e.g. from their offices) including voice interaction with Big Brown advising the driver to deliver a package to another unit or giving permission to leave at door. This option will require a software upgrade, and may use the resident’s cell phone. This option allows the resident to buzz-in maintenance and cleaning personnel.
- Allows the easy integration of resident’s personal cameras located inside their unit, if condo managements approves.
- Future software enhancements will identify ‘Tailgaters’ entering garages.
- Future integration is planned for the creation of a resident database to track incidents.

DRAWBACKS

- Initial implementation is restricted to 20 simultaneous users until simulcasting is implemented in ABORGuard™ software.
- Video will appear not as fluid as for analog transmission.
- All users will require a PC or laptop with Internet access.
- High-speed Internet service is recommended.

WHAT IS NEXT?

Following the restructuring of their MDU’s Buzzer-CAM monitoring architecture as described in this article, MDU management may opt to add additional camera(s), and upgrade the ABORGuard™ software with its advanced analytics (intelligent video) capability. With these improvements SecuraCorp will solve your ‘Tailgating’ problem. (See Figure 3 in the GA2 kit documentation to appear Q4-’08 at www.securacorp.com) Each MDU may require different cabling to connect the additional cameras needed due to potential difficulties penetrating concrete and steel. Possible solutions include using IP over power line (PLC) or IP-over-coax converters as needed.

PRICING & INFORMATION

For details and pricing contact: info@securacorp.com or see www.securacorp.com

*ABORGuard™ Application Pack GA1
Monitoring Buzzer Panel Cameras over the Internet*

REFERENCES

- 1 - <http://www.fcc.gov/cgb/consumerfacts/dtvcable.html>
- 2 - <http://www.engadgethd.com/2007/04/07/comcast-begins-digital-transition-in-chicago/>
- 3 - <http://www.comcast.com/customers/faq/FaqDetails.ashx?ID=4618>

**Figure 1. Gate Application GA1:
Entrance Monitoring by Internet**

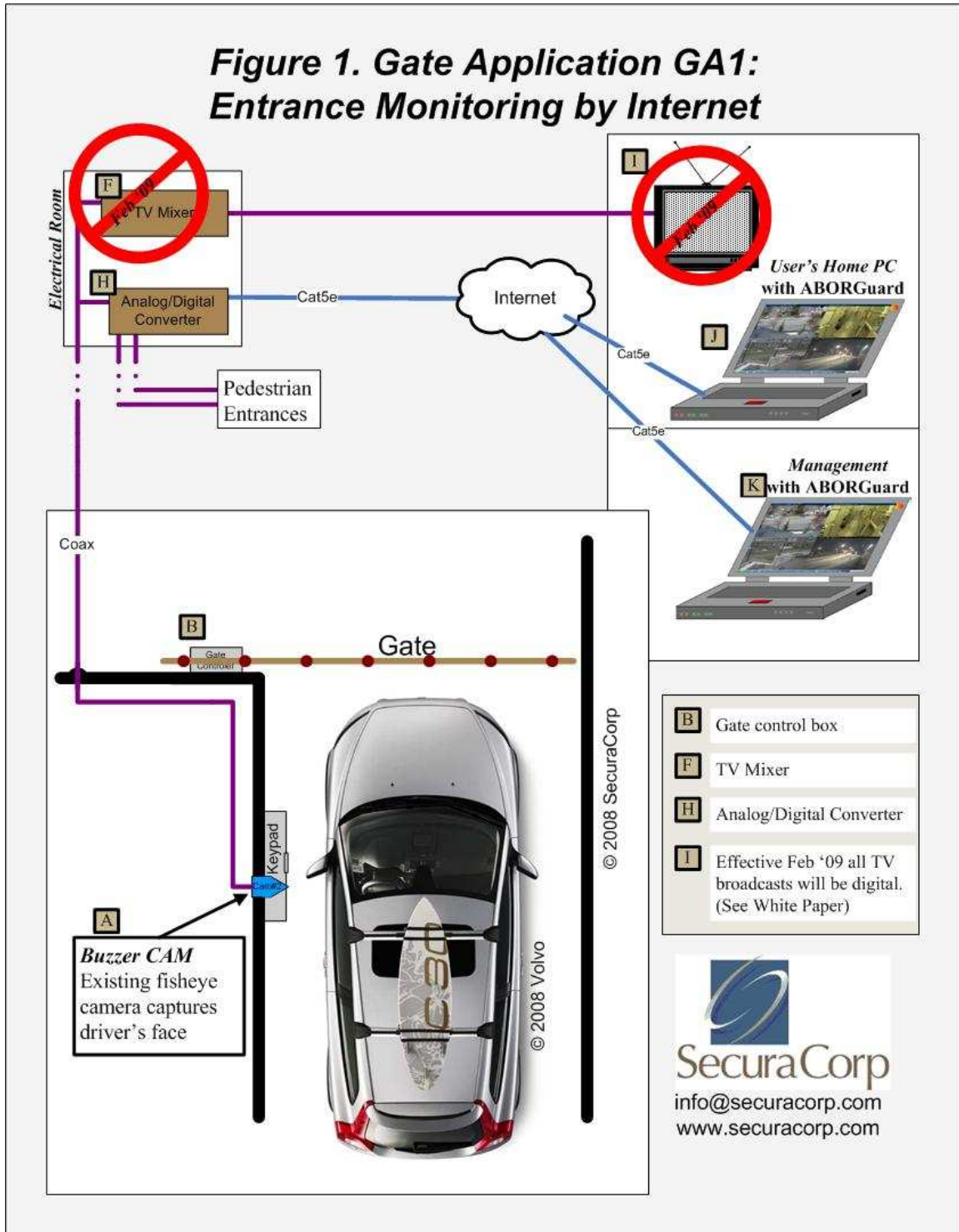




Figure 2. Color Camera for SecuraCorp GA1 Kit
Sony 550 Lines 0.2Lux 12V DC 90mamp