
THORBURN ASSOCIATES INC.
Acoustic and Technology Consultants
Newsletter

Summer 1998

After an extremely long winter, it's good to finally spend some time in the sun! To make this summer even better, we have added three more people to our engineering staff, balancing their duties between the latest influx of acoustical and audiovisual projects. A better description of our new staff and these latest projects can be found at www.TA-Inc.com in our press release links. Speaking of the web, thank you to all of our readers who are sending their e-mail addresses to Marketing@TA-Inc.com to get on our electronic newsletter list.

It's Time to Take Control

All audiovisual systems have something in common, no matter how simple or complex they may be: a control system. A/V control systems can range from a simple wall switch to a complicated Visual Basic program imbedded inside a Power Point presentation. The extent of the control system often depends on the audio and video system itself.

In its simplest form, control systems are a series of relays and switches which allow you to turn things on or off from a remote location.

This saves you the trouble of going back and forth to an equipment rack every time you need to make an adjustment. Quite useful if the rack is in another room! While there are many options for developing a solution, we prefer designing a dedicated control system with a simple user interface.

Remote Complications

Let's start with an example of an A/V control system which many of us can relate to. Imagine using Velcro to bundle your TV, cable, VCR and home stereo 'clickers' together. You would now have a single control system that lets you handle all the equipment in your home entertainment center. The advantage to this system is that all the clickers would be in one location and should be more difficult to lose. The disadvantage is that the bundle of remotes will be large and bulky. It would also be hard to learn how to use, and you could no longer hold it in one hand.

To make things easier, you can try using a "Universal Remote", the aftermarket type which combines your other remotes. But while that's fine for most home systems, the A/V system in a corporate board room is much too complicated for one of these devices. Imagine a universal remote trying to handle the functions for two TVs, four VCRs, a sound system, a computer graphics projector, and a video or teleconferencing system. In addition to this equipment, there are the other aspects of the room to control: drapes, a projection screen, and lights.

Can you picture a CEO fumbling with several different remotes just to view a video presentation? After investing in a state of the art A/V system, it makes sense for the user to have an easier way to handle its functions. Therefore, a custom control system is designed to give the user a simple way to control a complicated set of tasks.

Control Options

A/V equipment is generally controlled using one of three methods: Contact Closure, Wireless, or Computer Interface. A Contact Closure is the simplest method of controlling a device. This is basically a



relay which the control system turns on and off. These work best with simple mechanical things like motorized drapes, a retractable projection screen, or a motorized projector lift.

Wireless control systems utilize infrared (IR) or radio frequency (RF) signals. The remote controls for most home theatre and stereo equipment use this type of device. Professional control systems can also be programmed to beam IR signals to a device. However, these systems lack the capability of interactive response. This means that although the wireless control systems can tell the VCR to play a tape, it can't actually tell if the tape is playing, or even if the equipment is turned on.

Computer Interfaces are usually a standard serial port similar to what a computer's mouse plugs into. Most professional audiovisual equipment uses a computer interface because it provides two-way communication. This allows for status feedback reports which tell if the system is on or off, playing or stopped, and which other functions are active.

How Do I Control The Control?

The previous control system descriptions cover the units which send commands to the equipment. But in order for these to send the correct commands, they need input from the user.

The simplest user interface is a single button. Since there is usually more than one function necessary to run a system, more than one button will be needed. Several buttons can be placed in a Button Box and be wall-mounted, desk-mounted, or even placed in a hand-held remote. This type of user interface is fairly economical, and most appropriate if there are only a few functions to be controlled. Button boxes are used mainly for slide projectors, lighting, volume, or motorized drape control.

For a more complex system we can use a Graphical User Interface (GUI). Basically, this is a screen with button-sized graphics that represent a range of control functions. For the GUI to work as an A/V control we typically use a touch panel, a very flexible and increasingly popular interface. A touch panel is an LCD screen with a pressure sensitive surface. You just touch a specific graphic on the panel's screen to select what you would like to control. For example, if you wanted to play a video tape, press the button that looks like a VCR. To raise the sound level, push the volume bar up higher. Want it quiet? Drag it down a little lower.

Also, if there are more GUI 'buttons' than can fit on one screen, hidden screens can be called up to control different groups of functions. For instance, after selecting the VCR graphic, the VCR controls (play, stop, pause, etc.) are displayed. However, touch panels are only as good as the GUIs that are designed for it. If a person cannot understand the icon, the system design will not function as hoped. To design a successful control system, we need to be part engineer to make it work, part designer to make it usable, and part software programmer to tie it all together.

Newer touch panels allow real-time computer and video to be displayed along with the panel's 'buttons'. Video display is beneficial to anyone who wants to view a conference or presentation while controlling it. This is also a boon to people who want a computer mounted inside a podium, but no computer monitor on top of the podium. Touch panels can even incorporate a wireless control signal and be wall-mounted or desk-mounted.

The most complicated control system to implement uses a computer. This usually involves a custom programmed computer interface. Actual computer control of an A/V system is a fairly new concept for most of the industry. The advantages of this are similar to that of touch panels; putting small pictures of devices on a screen, and having many screens to control many functions. A computer interface can be designed to work via a local network, or even over the Internet.



Before you get too excited, remember we are talking about control, not output. Therefore, it is possible to use the Internet to tell a VCR to play from halfway around the world. But you still aren't going to see what the VCR is playing. Specific uses for this type of system are still emerging as networks are growing.

Remember, even though an audiovisual system may be crucial to a presentation or conference, the control system is central to the success of that audiovisual system. Sometimes, a simple control will suffice. For larger systems, more complex controls with simple user interfaces are needed. The specific style of the control system should be matched carefully with the user's requirements.

It's Trade Show Time!

When Fall approaches, you can bet we're gearing up for more trade shows. By the time you read this, we've finished the International Space Theatre Consortium show in Australia. But we still have another big one coming up – the International Association of Amusement Parks and Attractions. If you're attending this year's IAAPA show in Dallas (November 18 – 21), visit us in **Booth #668**.

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