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Subject: [simpits-tech] Frustration!

Posted by [dabigboy](#) on Sun, 12 Feb 2012 23:46:27 GMT

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Grrr....well I just found out the Fly Elise software I was going to use for my sim is Windows-only.....the screen warping software. Thus far that has been the case with all packages I've found. My sim is 100% Linux at this point, right down to my instrument panel display computers. I thought about caving in and running Windows XP on my visual computers, but.....I just can't bring myself to run a piece of crap operating system on my project.

If it were 10 years ago and I didn't know any better, I would probably just use Windows and be fine. But now that I've seen how an operating system is SUPPOSED to work, it's like going back to a 1990's Ford after driving a new Ferrari around for a while. Windows is slow, it's glitchy, it crashes, it gets in the way (especially when developing and prototyping sim stuff), it feels clunky, it leaks memory like the SR-71 leaks fuel, NTFS breaks itself as a matter of routine, the interface STILL looks like something from Fisher Price.....I just can't do it.

You know Windows doesn't even have a way to intelligently enumerate USB devices in any sane order? That means what is button 12 right now might not be button 12 next time you reboot, because Windows is SOMETIMES random in how it enumerates USB stuff. Plus, if you need to connect/disconnect a USB joystick controller, when you plug it back in OR just happen to not use the same USB port, it will get a new ID, throwing the button assignments into chaos once again. In Linux we can write udev rules so that the virtual device (or other attributes) of the USB device remains fixed based on serial number, vendor, model number, or a host of other USB metadata, REGARDLESS of what order the devices are plugged in or which port is used. We can even do fun things like automatically mount a specific USB storage device to a specific mount point, or even run scripts and programs when a device is plugged in.

Every time I see a Windows computer with labels on the USB ports, I just shake my head a little (the same feeling I get when I plug a USB mouse into a different port in a Windows machine and it has to "find" the drivers and "install" the mouse again). Windows has single-handedly defeated one of the chief selling points of USB technology in the first place.

Ahhhh....enough venting for now. If Fly Elise doesn't let me help them port their plugin, I guess my only option will be to go hit the OpenGL docs heavy and write the darn plugin myself.

Matt

---

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Subject: Re: [simpits-tech] Frustration!

Posted by [Gene Buckle](#) on Mon, 13 Feb 2012 00:41:16 GMT

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On Sun, 12 Feb 2012, dabigboy@cox.net wrote:

> Grrr....well I just found out the Fly Elise software I was going to use  
> for my sim is Windows-only.....the screen warping software. Thus far

Just FYI, FlightGear has built-in support for projecting on curved screen.  
The author will be working on making it deform to spherical section  
screens soon.

g.

--

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server-class system any more than sitting in a puddle makes you a duck.

[Cipher in a.s.r]

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Subject: Re: [simpits-tech] Frustration!

Posted by [dabigboy](#) on Mon, 13 Feb 2012 04:28:25 GMT

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You mean Curt? Wow that's good to know....I still can't quite get into FlightGear, but I bet I could

use the curved screen code for my plugin. Thanks for the tip!

Matt

---- Gene Buckle <geneb@deltasoft.com> wrote:  
> On Sun, 12 Feb 2012, dabigboy@cox.net wrote:  
>  
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Subject: Re: [simpits-tech] Frustration!

Posted by [phoenixcomm](#) on Mon, 13 Feb 2012 12:49:23 GMT

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On 2/12/2012 5:46 PM, dabigboy@cox.net wrote:

> Grrr....well I just found out the Fly Elise software I was going to use for my sim is Windows-only.....the screen warping software. Thus far that has been the case with all packages I've found. My sim is 100% Linux at this point, right down to my instrument panel display computers. I thought about caving in and running Windows XP on my visual computers, but.....I just can't bring myself to run a piece of crap operating system on my project.

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> Matt

>

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>

Relax, take a deep breath.. Windows is a virus.. and its spreading....  
I know as I have been living with Solaris on SPARC boxes for years as my  
development system for years! In early 90's I started a hosting company  
.. with a SPARCserver 690 chassis & 4 1.6gb drives.. and I thought it  
was the shit!!!

Cris H.  
phoenixcomm.wordpress.com  
phoenixcomm.net  
phoenixaerospace.us  
flite-tronics.com

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Subject: Re: [simpits-tech] Image warping (Was: Frustration!)  
Posted by [Gene Buckle](#) on Mon, 13 Feb 2012 15:57:24 GMT  
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On Mon, 13 Feb 2012, dabigboy@cox.net wrote:

> Cool, what's your specialty? I'm fairly comfortable with OpenGL, decent on trig, but very weak  
on calculus. I don't know if I will need calculus stuff for this yet, but I suspect so.

>

Matt, if you're running Linux end-to-end, what sim software are you using?

g.

--

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Subject: [simpits-tech] Image warping (Was: Frustration!)  
Posted by [Roberto Waltman](#) on Mon, 13 Feb 2012 16:12:55 GMT  
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dabigboy@cox.net wrote:  
> ... I guess my only option will be to go hit the OpenGL docs heavy and write the darn plugin myself.  
>

I would be interested in collaborating on this effort.

--  
Roberto Waltman

---

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Subject: Re: [simpits-tech] Image warping (Was: Frustration!)  
Posted by [dabigboy](#) on Mon, 13 Feb 2012 18:30:24 GMT  
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Cool, what's your specialty? I'm fairly comfortable with OpenGL, decent on trig, but very weak on

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Matt

---- Roberto Waltman <fsim@rwaltman.com> wrote:

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>

>

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Subject: Re: [simpits-tech] Image warping (Was: Frustration!)

Posted by [Roberto Waltman](#) on Mon, 13 Feb 2012 20:14:30 GMT

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Specialty? Jack of many trades and master of a few of them.

20+ years on embedded systems software. Used to be very good at math, but that was many moons ago.

(And it is true that if you don't use it you lose it.)

Basic OpenGL knowledge. "Visualizing Quaternions" book on my night table, untouched ...

Pilot in real life, (although rusty,) gliders + SEL.

Interested on flight simulators as projects that bring together many of my interests (math, electronics, physics, software, aviation; piano

doesn't fit in a '152,) and as training tools. \*Not\* interested in flight simulators as games, in particular, extremely not interested in multi-player flight simulation.

Mainly run (past tense) X-plane on Linux, with rare detours to Flightgear. Had for a short while a 3-computer 3-monitor setup, disassembled during a major basement cleanup.

Slowly putting back something I hope will look like this:

<http://www.youtube.com/watch?v=AXts91RQzW8>

Planning a similar 5-monitor layout, with 5 diskless computers (one per monitor) + a sixth for instruments and a file server to feed them all.

Have most of the hardware, but very little time to work on it.

I just ordered X-Plane 10, maybe it will reignite the fire ...

Roberto Waltman

PS: Probably (much) more geometry/trigonometry than calculus.

dabigboy@cox.net wrote:

Cool, what's your specialty? I'm fairly comfortable with OpenGL, decent on trig, but very weak on calculus. I don't know if I will need calculus stuff for this yet, but I suspect so.

Matt

---

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Subject: Re: [simpits-tech] Image warping (Was: Frustration!)

Posted by [dabigboy](#) on Tue, 14 Feb 2012 04:07:40 GMT

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X-Plane, of course. :) The Linux build has become very mature....heck, Austin develops on OSX on a Mac, which is much closer to Linux than to Windows anyway. X-Plane runs flawlessly on

Linux now, and performance is wonderful.

For instruments and driving Phidgets etc I'm using software I wrote myself in Python + OpenGL. Incidentally, I've just dived into my instrument software again as of last night....I am writing weather radar software which will grab the radar image from X-Plane to reflect the actual weather patterns, while also offering more features (like adjustable range) and a realistic "sweep" pattern instead of the fanciful real-time weather display which X-Plane has had for years. :) Last night I got the sweeper display working. Plan is to cannibalize an old broken radar display unit out of a real plane and use its buttons/knobs etc with a PS2 LCD inside it to render weather.

Matt

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Subject: Re: [simpits-tech] Image warping (Was: Frustration!)

Posted by [dabigboy](#) on Tue, 14 Feb 2012 04:16:06 GMT

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Cool, sounds like you've had some interesting experiences. Do you still fly? I'm a pilot as well, I find the ever-increasing price of flying somewhat prohibitive, but I do make a point to take up a plane or two every couple months or so if I can. Well if you worked on embedded systems I would guess you have some good software skills.....I will let you know if I go ahead with the screen warping plugin. I \*could\* always just go with 3 flat projector screens, but I've seen those in videos and I know how it would look, I just don't think I'd like it very much. A spherical would be the best of course, but I believe a cylindrical screen is a good compromise.

Matt

---- Roberto Waltman <[fsim@rwaltman.com](mailto:fsim@rwaltman.com)> wrote:

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- > 20+ years on embedded systems software. Used to be very good at math,
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- > Have most of the hardware, but very little time to work on it.

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Subject: Re: [simpits-tech] Image warping (Was: Frustration!)  
Posted by [Roberto Waltman](#) on Tue, 14 Feb 2012 15:53:23 GMT  
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dabigboy@cox.net wrote:  
> ... Plan is to cannibalize an old broken radar display unit out of a real plane and use its  
buttons/knobs etc with a PS2 LCD inside it to render weather.

I got a few used Mio Moov-200 GPS for simulated instruments.  
Squarish, blackish, they may look as aircraft instruments when squinting  
from a distance.

No buttons, but they do have a touch screen.

They run Windows CE 5 and can run programs from the built-in card reader instead of the GPS app.

The CPU is a well documented Samsung S3C2443, so it may be possible to install a different OS if enough time and energy is wast^H^H^H^H spent on this.

--

Roberto Waltman

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Subject: Re: [simpits-tech] Image warping (Was: Frustration!)

Posted by [dabigboy](#) on Wed, 15 Feb 2012 06:20:24 GMT

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> on this.

Nice! It appears to be a little less than 3.5" and square, which is almost perfect for single glass instruments (HSI, attitude indicator, etc). I am reaching a point where I can make so many real gauges, I don't have room to fit my 15" monitor behind the instrument panel anymore. This might be a solution.....I will still try to scrounge up an old radar though. I want it to look/be real...IOW, I want someone to be able to look right at the radar bezel and buttons, touch it and use it, and not

be able to tell the difference between mine and a real one. :)

Matt

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Subject: Re: [simpits-tech] Image warping (Was: Frustration!)

Posted by [Roberto Waltman](#) on Wed, 15 Feb 2012 12:25:25 GMT

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>> ... Mio Moov-200 GPS for simulated instruments.

> Nice! It appears to be a little less than 3.5"

> and square, which is almost perfect for single

> glass instruments (HSI, attitude indicator, etc).

My thoughts precisely.

(But they are clearly on the "rectangular"

wagon, not square)

---

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Subject: Re: [simpits-tech] Image warping (Was: Frustration!)

Posted by [Gene Buckle](#) on Sat, 18 Feb 2012 01:07:30 GMT

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On Mon, 13 Feb 2012, dabigboy@cox.net wrote:

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> fanciful real-time weather display which X-Plane has had for years. :)  
> Last night I got the sweeper display working. Plan is to cannibalize an  
> old broken radar display unit out of a real plane and use its  
> buttons/knobs etc with a PS2 LCD inside it to render weather.

I'd like to see that code some time. I've got a box full of Phidgets that I haven't done anything with.

The only hang-up I have with XP is you need to use three instances to get three projectors worth of accurate output.

g.

--

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Posted by [Gene Buckle](#) on Sat, 18 Feb 2012 01:24:16 GMT  
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> be able to look right at the radar bezel and buttons, touch it and use  
> it, and not be able to tell the difference between mine and a real one.  
> :)

You guys should check out the Raspberry Pi. IT's a full-featured GP  
computer for \$35. <http://www.raspberrypi.org>

g.

--

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[Cipher in a.s.r]

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Subject: Re: [simpits-tech] Image warping (Was: Frustration!)  
Posted by [brian](#) on Sat, 18 Feb 2012 05:29:07 GMT  
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---

> You guys should check out the Raspberry Pi. IT's a full-featured GP  
> computer for \$35. <http://www.raspberrypi.org>  
>  
> g.  
>  
> Very interesting!

Brian

---

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Subject: Re: [simpits-tech] Image warping (Was: Frustration!)  
Posted by [dabigboy](#) on Sat, 18 Feb 2012 08:31:20 GMT  
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---

---- Gene Buckle <[geneb@deltasoft.com](mailto:geneb@deltasoft.com)> wrote:

>  
> I'd like to see that code some time. I've got a box full of Phidgets that  
> I haven't done anything with.

Sure thing. I need to clean it up a bit, and add/fix some comments. Incidentally, it's all in Python at the moment, using the Python Phidgets wrapper, but is basically identical to the C++ calls, excepting the typical language-specific conventions of course. I may even move it over to C++, we'll see.....I finally got my feet wet with C++ last year, thinking "hey, now I can do everything there instead"....but honestly, I still find Python just a lot more fun to code in. And since any speed issues are simply not a factor on any of my software thus far, even the OpenGL stuff (and I'm running it on an old Athlon XP....), I will probably only port it to C++ if I decide to publicly release it (which is something of a goal, eventually).

Incidentally, I got the radar working the other night.....it properly updates from X-Plane (on the same PC or a network PC as well), while giving a very convincing "sweep", exactly like a real radar. Now I can do the interface design, overlays, legends, input handling, etc...it's all fun stuff

from here. :)

> The only hang-up I have with XP is you need to use three instances to get  
> three projectors worth of accurate output.

I do seem to recall some funny distortions in the side views at extreme FOVs, is that what you're referring to?

Honestly I'm not going with more than one display per PC anyway...especially as cheap as PCs are nowadays, I feel like running one display per machine is the least I can do to help frame rates. I have old Core 2 Duo and AM2+ PCs right now with 7000 to 9000 series NVidia cards, and on my 1024x768 machines they run silky smooth at moderate settings with XP9. But if I had killer PCs, I would still run one display per PC, and just crank up the graphics. :)

As far as the software cost....since I'm running Linux, all I have to do is create an image of the DVD and mount it as a loopback device. My main sim PC doesn't even have a DVD drive. Not sure how this works from a licensing perspective....I suppose for a small home setup it doesn't violate anything. You can do this with Windows too, but it requires third-party software and is a bit kludgy.....but then that's the case with most of the actually useful stuff you want to do in Windows anyway. :)

Matt

---

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Subject: Re: [simpits-tech] Image warping (Was: Frustration!)

Posted by [dabigboy](#) on Sat, 18 Feb 2012 08:35:23 GMT

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---

Oh my goodness! That is extremely cool...heck I could stick one of these in each radio if I needed to, and make my radios stand-alone PCs....crazy! And cheap, AND it runs Linux....oh yes I am definitely getting one. Thanks for the link Gene!

Matt

---- Gene Buckle <geneb@deltasoft.com> wrote:

> On Tue, 14 Feb 2012, dabigboy@cox.net wrote:

>  
> >  
> > Nice! It appears to be a little less than 3.5" and square, which is  
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> > etc). I am reaching a point where I can make so many real gauges, I  
> > don't have room to fit my 15" monitor behind the instrument panel  
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>  
> --  
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Subject: Re: [simpits-tech] Image warping (Was: Frustration!)  
Posted by [Roberto Waltman](#) on Sat, 18 Feb 2012 14:37:12 GMT  
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---

Gene Buckle wrote:

> You guys should check out the Raspberry Pi.

I have been following it since it was announced and plan to buy a few,  
but for different uses.

We are not comparing apples to apples here, the main thing the GPS's I  
was talking about provide is a screen.

--

Roberto Waltman

---

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Subject: Re: [simpits-tech] Image warping (Was: Frustration!)  
Posted by [Roberto Waltman](#) on Sat, 18 Feb 2012 15:17:01 GMT  
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---

dabigboy@cox.net wrote:

... create an image of the DVD and mount is as a loopback  
device.

... You can do this with Windows too, but it requires  
third-party software and is a bit kludgy.

MagicDisc works well. Tried it in Windows 7 and XP.

<http://www.magiciso.com/tutorials/miso-magicdisc-overview.htm>

--

Roberto Waltman

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Subject: Re: [simpits-tech] Image warping (Was: Frustration!)

Posted by [Gene Buckle](#) on Sat, 18 Feb 2012 17:36:07 GMT

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> Incidentally, I got the radar working the other night.....it properly  
> updates from X-Plane (on the same PC or a network PC as well), while  
> giving a very convincing "sweep", exactly like a real radar. Now I can  
> do the interface design, overlays, legends, input handling, etc...it's  
> all fun stuff from here. :)  
>Ahh,neat!

> I do seem to recall some funny distortions in the side views at extreme  
> FOVs, is that what you're referring to?  
Yep, that's it. If you go over certain width & hight the image generator completely looses it's mind. Now there's nothing saying you can't use FSX or XP10 as the input engine to the FG display.

:)

g.

--

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Subject: Re: [simpits-tech] Image warping (Was: Frustration!)

Posted by [Gene Buckle](#) on Sat, 18 Feb 2012 17:39:40 GMT

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On Sat, 18 Feb 2012, dabigboy@cox.net wrote:

> Oh my goodness! That is extremely cool...heck I could stick one of these  
> in each radio if I needed to, and make my radios stand-alone  
> PCs....crazy! And cheap, AND it runs Linux....oh yes I am definitely  
> getting one. Thanks for the link Gene!

>

No problem. The R'Pi has a built in GPU with OpenGL support - it can watch video at 1080p with no frame skips, so I suspect the GPU is pretty fast.

g.

--

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Subject: Re: [simpits-tech] Image warping (Was: Frustration!)  
Posted by [Roberto Waltman](#) on Sat, 18 Feb 2012 22:41:14 GMT  
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---

Gene Buckle wrote:

> No problem. The R'Pi has a built in GPU with OpenGL support - it can  
> watch video at 1080p with no frame skips, so I suspect the GPU is pretty  
> fast.

It is (allegedly) the same CPU/GPU used in the Roku 2 XS media streamer,  
so yes and yes.

--

Roberto Waltman

---

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Subject: Re: [simpits-tech] Image warping (Was: Frustration!)  
Posted by [phoenixcomm](#) on Sun, 19 Feb 2012 04:28:56 GMT  
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---

On 2/18/2012 2:35 AM, [dabigboy@cox.net](mailto:dabigboy@cox.net) wrote:

> Oh my goodness! That is extremely cool...heck I could stick one of these in each radio if I  
> needed to, and make my radios stand-alone PCs....crazy! And cheap, AND it runs Linux....oh yes  
I am definitely getting one. Thanks for the link Gene!

>

> Matt

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> ---- Gene Buckle<[geneb@deltasoft.com](mailto:geneb@deltasoft.com)> wrote:

>> On Tue, 14 Feb 2012, [dabigboy@cox.net](mailto:dabigboy@cox.net) wrote:

>>

>>> Nice! It appears to be a little less than 3.5" and square, which is

>>> almost perfect for single glass instruments (HSI, attitude indicator,

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>>> don't have room to fit my 15" monitor behind the instrument panel

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Im going to pick one up myself .. but my radios are in one Gables 5 in  
one unit thats 3 comms, 2 navs..  
the interface is ARINC410  
(<http://phoenixcomm.wordpress.com/projects/airinc-410/>) which i designed  
a interface for the Aruino parallel ports.. this solution does not  
require any change to the radio head! As an engineer I hate to redevelop  
the wheel.. lol my adapter is only on paper as I have been caught short  
for cash and was looking into using a Xilinx part to get rid of all the  
gates... I will try and put enough info up in my blog to show one

channel. my unit will handle lots of radios, 5 bits of data per head + power, + dial lamps, dme lights, etc. also when you read the radio you also see the power switch..

each radio also has volume control out puts all 3 wires so you can do you own thing.. what I have planed is a network radio connection with its output (may just use one computer with lots of audio adapters in it.. then all the outputs goes through the radio head(s) and to a unity gain mixer then to a little amp and to speakers or headphones.. oh yes you most likely like a second output off the mixer to the 'data recorder'....

enjoy

Cris H.

phoenixcomm.wordpress.com

phoenixaeospace.us

flite-tronics.com

---

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Subject: Re: [simpits-tech] Image warping (Was: Frustration!)

Posted by [dabigboy](#) on Sun, 19 Feb 2012 07:15:38 GMT

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---- Cris Harrison <phoenixcomm@gmail.com> wrote:

> Im going to pick one up myself .. but my radios are in one Gables 5 in

> one unit thats 3 comms, 2 navs..

> the interface is ARINC410

> (<http://phoenixcomm.wordpress.com/projects/airinc-410>)

Funny you should mention this, I have a Gables navcom unit on my desk right now. I emailed Gables and they actually sent me the pinout for this model, which has proven immensely helpful. I have the code figured out for the nav side (which is all I need), I'm soldering up a test harness right now. I will actually be interfacing it with a USB joystick controller, no special circuits needed!

Although it would be slick to roll my own little microcontroller (or just use an Arduino) to simplify things on the PC end (less inputs, the Arduino would figure out what freq is selected and spit it out to the PC). Once I verify everything will work as planned, I'm going to make more permanent connection mounts (like a small avionics tray with a breadboard on it) and mount it in my as-of-yet unbuilt avionics stack....even have a real audio panel to hook it into. :) (The nav and com both have volume control.) As you probably know, the Gables units have integrated lighting, so it should look really nice installed. And the old-school analog look is perfect for the classic bizjets and midsize twins I intend to simulate.

This is some seriously fun stuff. :)

Matt

---

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Subject: Re: [simpits-tech] Image warping (Was: Frustration!)

Posted by [phoenixcomm](#) on Tue, 21 Feb 2012 04:00:00 GMT

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On 2/19/2012 1:15 AM, dabigboy@cox.net wrote:

> ---- Cris Harrison<[phoenixcomm@gmail.com](mailto:phoenixcomm@gmail.com)> wrote:

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Hey Matt hang on there.. I just posted a new post about ARINC 410 and  
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Enjoy..  
Cris H.  
Phoenixcomm@wordpress.com  
phoenixaerospace.us  
flite-tronics.com

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Subject: Re: [simpits-tech] Image warping (Was: Frustration!)  
Posted by [phoenixcomm](#) on Tue, 21 Feb 2012 06:21:35 GMT  
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On 2/20/2012 10:00 PM, Cris Harrison wrote:  
> On 2/19/2012 1:15 AM, dabigboy@cox.net wrote:  
>> ---- Cris Harrison<[phoenixcomm@gmail.com](mailto:phoenixcomm@gmail.com)> wrote:  
>>> Im going to pick one up myself .. but my radios are in one Gables 5 in  
>>> one unit thats 3 comms, 2 navs..  
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>>  
>> Matt

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>>  
> Hey Matt hang on there.. I just posted a new post about ARINC 410 and  
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> <http://phoenixcomm.wordpress.com/2012/02/21/arinc-410interfa ce/>

>  
> Enjoy..  
> Cris H.  
> Phoenixcomm@wordpress.com  
> phoenixaerospace.us  
> flite-tronics.com

>  
>  
BTW how in the world are you going to use a joystick controller???  
Cris H.

\_\_\_\_\_  
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Subject: Re: [simpits-tech] Image warping (Was: Frustration!)

Posted by [dabigboy](#) on Tue, 21 Feb 2012 06:41:48 GMT

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---- Cris Harrison <phoenixcomm@gmail.com> wrote:

> >>

> > Hey Matt hang on there.. I just posted a new post about ARINC 410 and

> > some proto info.. lots of info

> > <http://phoenixcomm.wordpress.com/2012/02/21/arinc-410interfa ce/>

Thanks Chris, you have some good info there! Your chart looks really close to the JPG that Gables sent me.

> BTW how in the world are you going to use a joystick controler???

> Cris H.

Well, call it a cave-man approach, but since I don't have an Arduino or similar unit yet, and since my microcontroller skills are most definitely in their infancy to say the least.....I am wiring the 8 inputs for the decimal place on NAV to 8 inputs on my Plasma V2 controller, with the Gables common lead going to VCC on the Plasma. With software, I simply check the status of each input, in order, and end up wiith essentially an 8-bit string that is unique for each frequency. I already have this part working within X-Plane.

For the whole numbers, there are only 10 unique values, and the head uses a resistor pack. Two leads get different resistance values based on frequency. I was just going to wire this into one analog input and read its value to determine frequency. The problem I'm having right now is detailed in my other post....basically, the Plasma needs to see the ground terminal of the "potentiometer" in order to read it. Of course, there really is no ground terminal for the resistor pack...I think?

At the end of the day I will be using 8 digital inputs plus one analog input for this and similar heads. I suppose that's really no worse than using 8 + 1 inputs of an Arduino, the only difference is the (extremely light) processing would happen on the Arduino instead of inside an X-Plane plugin on the PC. At any rate, the code is ludicrously simple this way.

Matt

---

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Subject: Re: [simpits-tech] Image warping (Was: Frustration!)

Posted by [phoenixcomm](#) on Tue, 21 Feb 2012 09:52:31 GMT

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On 2/21/2012 12:41 AM, dabigboy@cox.net wrote:

> ---- Cris Harrison<[phoenixcomm@gmail.com](mailto:phoenixcomm@gmail.com)> wrote:

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> Well, call it a cave-man approach, but since I don't have an Arduino or similar unit yet, and since my microcontroller skills are most definitely in their infancy to say the least.....I am wiring the 8 inputs for the decimal place on NAV to 8 inputs on my Plasma V2 controller, with the Gables common lead going to VCC on the Plasma. With software, I simply check the status of each input, in order, and end up wiith essentially an 8-bit string that is unique for each frequency. I already have this part working within X-Plane.

>

> For the whole numbers, there are only 10 unique values, and the head uses a resistor pack. Two leads get different resistance values based on frequency. I was just going to wire this into one analog input and read its value to determine frequency. The problem I'm having right now is detailed in my other post....basically, the Plasma needs to see the ground terminal of the "potentiometer" in order to read it. Of course, there really is no ground terminal for the resistor pack...I think?

>

> At the end of the day I will be using 8 digital inputs plus one analog input for this and similar heads. I suppose that's really no worse than using 8 + 1 inputs of an Arduino, the only difference is the (extremely light) processing would happen on the Arduino instead of inside an X-Plane plugin on the PC. At any rate, the code is ludicrously simple this way.

>

> Matt

>

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>

Matt

Your idea, with the analog port; it will not work.

I have seen people tare up the radio head and change all the wiring (If you really want to go through, and redesign the thing), when you have the pin-out! just get a connector and build a nice cable.

Ok.

If you have old Gables head its ARINC410.. a 2 of 5 code thats only 5bits per digit (not 8). and 5 digits.... per radio head.

I described ARINC 410 here

<http://phoenixcomm.wordpress.com/projects/airinc-410/>

then I showed 1 bit here

<http://phoenixcomm.wordpress.com/projects/radiointercom-syst em/g-4390/>

and then my latest

<http://phoenixcomm.wordpress.com/2012/02/21/arinc-410interfa ce/> puts it

all together you could use a pc's bi-directional printer port and then hang the interface off that.. but then

you will have to run the interface on the PC itself.. and my 'driver' is just a few loops. and its not interrupt driven.

and the thing you have to remember in all this the radio head (the gables unit), is LOW ACTIVE!!

this means the driver has to take the info that you send back to the sim, and invert or logically NOT it..

in the 'driver' not the right word, you must scan through each radio then trough all 5 channels.

the way I designed the 'driver' or subsystem is that you only 'talk' to the sim when you have something to say. that is to say when you the pilot change the knob on the panel.

---

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Subject: Re: [simpits-tech] Image warping (Was: Frustration!)  
Posted by [dabigboy](#) on Wed, 22 Feb 2012 06:29:32 GMT  
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---

---- Cris Harrison <phoenixcomm@gmail.com> wrote:

>

> Matt

> Your idea, with the analog port; it will not work.

>

> I have seen people tare up the radio head and change all the wiring (If  
> you really want to go through, and redesign the thing), when you have  
> the pin-out! just get a connector and build a nice cable.

<snip>

Hmmmm I think I see part of my problem...I saw the resistor pack on the whole digits and just assumed the actual radio was reading the resistance value based on frequency selection....but then there should only be two terminals for the whole digits, while clearly there are more.

One of your diagrams just "clicked" for me now....by "2 of 5" you're saying that for one set of digits (tenths, for instance) there are 5 wires on the back of the Gables unit, and only two of those will be active at any given time? I think my particular unit uses one or two more wires, but I see what you're saying here. So my whole digits must be using the same kind of idea, I just didn't realize it at first.....so I'm guessing the resistors on the whole digits rotary switch are actually pull-down resistors? Hrrmm.....I am still a bit unclear, but the fog is slowly lifting. :)

I haven't hackerized the whole digits yet, perhaps I need to grab the multimeter and revisit them. Btw, the ONLY reason I am forced to cut into the wiring harness for the head is that the connectors are over \$100 a piece....doesn't make much sense to spend \$300+ for something that barely cost me \$40. Even if I can make the original wiring scheme work, I will still have to cut into the wiring and use something other than the built-in connector. It does suck. :(

Matt

---

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Subject: Re: [simpits-tech] Image warping (Was: Frustration!)

On 2/22/2012 12:29 AM, dabigboy@cox.net wrote:

> ---- Cris Harrison<phoenixcomm@gmail.com> wrote:

>> Matt

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Hay the fog has lifted... sorry bout the stick I was hitting you with... so to some it up..

Each digit has 5 wires (bits) and only 2 of them will be low the other 3 will be pulled up> :)

I found a video on you tube:

<http://www.youtube.com/watch?v=4skhmZhXjjo&feature=endscreen&NR=1>

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> Matt

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Subject: Re: [simpits-tech] Image warping (Was: Frustration!)  
Posted by [Contrapezist](#) on Thu, 23 Feb 2012 11:02:29 GMT  
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---

I'm not totally opposed to changing the connectors, sometimes I have a hard time finding the right ones reasonably. Sometimes I get stuff with a cut off connector, these have a fairly high scrap value due to the gold plating. D connectors will usually suffice. A lot of times if I have the proper connector I end up just terminating it to D connector anyway. BTW Anyone else get frustrated to death over slight differences between bendix, cannon and deustch. Have the right clocking same number and gauge of pins but slightly different diameter. Need to set up a parts exchange, I have a mess of connectors that don't fit anything I have as I'm sure others do.

Myself I haven't had much luck getting information out of gables, over the years my requests for information have gone unanswered so I just gave up. Have some nice audio panels that will be quite an effort to reverse engineer that are just gathering dust.

Glad the video helped shine some light on what's happening. The guy that made it is real oddball nut with a ridiculous bunch of crap and spends way too much time playing with "black boxes" rather than building usable sim stuff. I think I used errr he used 10K resistors and 28V no special reason it just happened to work.

Austin

-----Original Message-----

From: simpits-tech-bounces@simpits.org  
[mailto:simpits-tech-bounces@simpits.org] On Behalf Of Cris Harrison  
Sent: Wednesday, February 22, 2012 7:29 AM  
To: Simulator Cockpit Builder's List  
Subject: Re: [simpits-tech] Image warping (Was: Frustration!)

On 2/22/2012 12:29 AM, dabigboy@cox.net wrote:

> ---- Cris Harrison<phoenixcomm@gmail.com> wrote:

>> Matt

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your right about the connectors... OUCH. ok look up Connector  
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its in plastic or if it scratched... I realy dont know what else you are  
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piece....doesn't make much sense to spend \$300+ for something that barely  
cost me \$40. Even if I can make the original wiring scheme work, I will  
still have to cut into the wiring and use something other than the built-in  
connector. It does suck. :(

>

> Matt

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Subject: Re: [simpits-tech] Gables/Connectors

Posted by [phoenixcomm](#) on Thu, 23 Feb 2012 13:30:18 GMT

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---

On 2/23/2012 5:02 AM, Contrapezist wrote:

> I'm not totally opposed to changing the connectors, sometimes I have a hard  
> time finding the right ones reasonably. Sometimes I get stuff with a cut off  
> connector, these have a fairly high scrap value due to the gold plating. D  
> connectors will usually suffice. A lot of times if I have the proper  
> connector I end up just terminating it to D connector anyway. BTW Anyone  
> else get frustrated to death over slight differences between bendix, cannon  
> and deustch. Have the right clocking same number and gauge of pins but  
> slightly different diameter. Need to set up a parts exchange, I have a mess  
> of connectors that don't fit anything I have as I'm sure others do.

That why connector houses make money.. no two are alike.. I could do  
what you suggested about a 'exchange'. to launch it I would need the  
following: part-number, manufacture, new/used, condition, quantity. Each  
Vendor (lack of a better word) would list his/her parts. ....

>

> Myself I haven't had much luck getting information out of gables, over the  
> years my requests for information have gone unanswered so I just gave up.  
what do you mean 'requests for information'? ie email?? nah just call  
the girl in charge of documents, though you will not get the 'book' you  
will get outline, and pinout info..

> Have some nice audio panels that will be quite an effort to reverse engineer  
> that are just gathering dust.

which audio panels.. (always looking for panels my self) photos & numbers :)

>

> Glad the video helped shine some light on what's happening.

> The guy that

> made it is real oddball nut with a ridiculous bunch of crap and spends way  
> too much time playing with "black boxes" rather than building usable sim  
> stuff. I think I used errr he used 10K resistors and 28V no special reason  
> it just happened to work.

duh why put yourself down?? we are all nuts, and we spend waaaay to much time paying with boxes... LOL.

>

> Austin

>

> -----Original Message-----

> From: simpits-tech-bounces@simpits.org

> [mailto:simpits-tech-bounces@simpits.org] On Behalf Of Cris Harrison

> Sent: Wednesday, February 22, 2012 7:29 AM

> To: Simulator Cockpit Builder's List

> Subject: Re: [simpits-tech] Image warping (Was: Frustration!)

>

> On 2/22/2012 12:29 AM, dabigboy@cox.net wrote:

>> ---- Cris Harrison<phoenixcomm@gmail.com> wrote:

>>> Matt

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>>>

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> piece....doesn't make much sense to spend \$300+ for something that barely

> cost me \$40. Even if I can make the original wiring scheme work, I will

> still have to cut into the wiring and use something other than the built-in

> connector. It does suck. :(

>> Matt

>  
>  
> 

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Subject: Re: [simpits-tech] Image warping (Was: Frustration!)  
Posted by [Gene Buckle](#) on Thu, 23 Feb 2012 14:24:39 GMT  
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---

On Thu, 23 Feb 2012, Contrapezist wrote:

> Myself I haven't had much luck getting information out of gables, over the  
> years my requests for information have gone unanswered so I just gave up.  
> Have some nice audio panels that will be quite an effort to reverse engineer  
> that are just gathering dust.

>  
Austin, your best bet is to find the closest authorized repair station for  
Gables hardware and strike up a friendship with one of their bench techs.  
:)

It's like what I do when researching some bit about the F-15. I never  
hunt down a pilot, I go for the maintainers. They're happy to answer my  
question if they're permitted to and they're generally an awesome bunch of  
folks to work with. The pilots act like upper management. :) (except one  
Mudhen driver I know - he's a maintainer in pilot's clothing \*grin\*)

g.

--  
Proud owner of F-15C 80-0007

<http://www.f15sim.com> - The only one of its kind.  
<http://www.diy-cockpits.org/coll> - Go Collimated or Go Home.  
Some people collect things for a hobby. Geeks collect hobbies.

ScarletDME - The red hot Data Management Environment  
A Multi-Value database for the masses, not the classes.  
<http://www.scarletdme.org> - Get it today!

Buying desktop hardware and installing a server OS doesn't make a server-class system any more than sitting in a puddle makes you a duck.  
[Cipher in a.s.r]

---

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Subject: Re: [simpits-tech] Image warping (Was: Frustration!)  
Posted by [dabigboy](#) on Fri, 24 Feb 2012 01:33:17 GMT  
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---

---- Contrapezist <[Contrapezist@sportogs.com](mailto:Contrapezist@sportogs.com)> wrote:

>  
> Myself I haven't had much luck getting information out of gables, over the  
> years my requests for information have gone unanswered so I just gave up.  
> Have some nice audio panels that will be quite an effort to reverse engineer  
> that are just gathering dust.

Strange, I just emailed them and they asked things like my company name, FAA repair station number, address, etc.... :P I replied that I was just a lowly recreational user putting their gear into a home sim. The rep was very clear that they offered no support for the likes of me, but did attach the pinout for the control head in question. :)

> Glad the video helped shine some light on what's happening. The guy that  
> made it is real oddball nut with a ridiculous bunch of crap and spends way  
> too much time playing with "black boxes" rather than building usable sim  
> stuff. I think I used errr he used 10K resistors and 28V no special reason  
> it just happened to work.

I was excited to see a digital control head working, that would seem to indicate the actual interface to the radio itself is similar across manufacturers, that it is a standard? If so, that's awesome because I can write one program and use a lot of different types of heads if I want to. Thanks for passing it on!

Matt

---

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Subject: Re: [simpits-tech] Image warping (Was: Frustration!)

Posted by [dabigboy](#) on Fri, 24 Feb 2012 01:38:17 GMT

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---- Cris Harrison <phoenixcomm@gmail.com> wrote:

> Hay the fog has lifted... sorry bout the stick I was hitting you

> with... so to some it up..

> Each digit has 5 wires (bits) and only 2 of them will be low the other 3

> will be pulled up> :)

> I found a video on you tube:

> <http://www.youtube.com/watch?v=4skhmZhXjjo&feature=endscreen&NR=1>

> < <http://www.youtube.com/watch?v=4skhmZhXjjo&feature=endscreen&NR=1>>

Oh don't worry about the big stick, I need to be hit over the head now and then. :) I am enjoying the learning process, the simpits list is probably the greatest source of information and inspiration I've had for my flight sim projects.

> your right about the connectors... OUCH. ok look up Connector

> Distribution in LA check them out also them them that you dont care if

> its in plastic or if it scratched... I really dont know what else you are

> going to use...

Thanks for the tip, I will check them out. I may also call up my local salvage yard that offered to sell me a stripped Learjet fuselage for \$1,500.....I'm sure they have tons of connectors from stripped planes.

Matt

---

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Subject: Re: [simpits-tech] Image warping (Was: Frustration!)

Posted by [phoenixcomm](#) on Fri, 24 Feb 2012 03:05:31 GMT

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On 2/23/2012 7:38 PM, dabigboy@cox.net wrote:

> ---- Cris Harrison<phoenixcomm@gmail.com> wrote:

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>

oh btw lam looking for ARINC Mounts for my instruments.. most of the stuff you will come across the instrument has 4 holes in the corners..

nope I need the mounts for round or square instruments..

<http://www.avionicsmounts.com/ARINC%20408A%20Instrument%20Mounts.php> but only if they are cheap!!

---

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Subject: Re: [simpits-tech] Image warping (Was: Frustration!)

Posted by [dabigboy](#) on Fri, 24 Feb 2012 07:14:29 GMT

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---- Cris Harrison <[phoenixcomm@gmail.com](mailto:phoenixcomm@gmail.com)> wrote:

> >

> oh btw I am looking for ARINC Mounts for my instruments.. most of the

> stuff you will come across the instrument has 4 holes in the corners..

> nope I need the mounts for round or square instruments..

> <http://www.avionicsmounts.com/ARINC%20408A%20Instrument%20Mounts.php> but

> only if they are cheap!!

You and me both! For all the challenges and questions I thought about before I really started working on my sim a couple years ago, mounting hardware and connectors seemed the least of my worries. But it's turning into a daunting challenge....I'm looking at my nice Gables head and some other real-world goodies, and thinking "man I really need the other pieces for this stuff." Well, I will keep my eyes peeled...we have a salvage yard here in town that scraps turboprops and bizjets, I may get a shopping list together some time and see what they can do for me.

Matt

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