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TWiki Tip of the Day
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You are here: TWiki > 🟨 REU07 Web > DigitalCommunities > DItDCblog   r27 - 03 Aug 2007 - 18:42:35 - JanaLepon

Tags: blog 1 ⬆, second_life 1 ⬆, [   ] ▲▼ ➕, create new tag

Welcome to the blog for the Direct Interface to Digital Communities research group (or just Second Life if you're into that whole brevity thing). This is a place for presenting our progress as a team and getting feedback from other researchers.

Some final things

The paper.

My code is the unmodified Linden source, but with the llviewertracker.cpp and .h files in /indra/newview/ and a call to tracker_listener() (or something like that) in the main_loop in viewer.cpp. The llviewertracker class is based on the llviewerjoystick class.

-- JanaLepon - 03 Aug 2007

Poster

The poster.

-- JanaLepon - 23 Jul 2007

Update and Abstract

That guy I mentioned earlier did reply to me. (The only person who has, it seems...) Nobody ever helped him, and he made no progress on the project. Inspiring.

Here's the paper abstract. Let me know if there are any edits to be made before Friday:

While once considered only for socializing and entertainment, in recent years, digital communities such as Second Life have begun to take on a myriad of new uses. As education, politics, and business enter such online spaces, it becomes more important that navigation and display not detract from content and user experience. The current mouse-and-keyboard interface is non-intuitive and does not allow for truly immersive experiences in online communities. This paper describes the design and advantages of an improved interface employing body tracking and a four-paneled, stereoscopic display.

-- JanaLepon - 18 Jul 2007

The Final Countdown

We went over to the C4 today to see what we could see. I think some good progress was made on the infrared MotionAnalysis? tracker. With a great

deal of help from Ken, we might soon be able to get any number of tracked positions. There's only about three weeks left to go, so it's officially crunch time. Alex, Jana, and Tony posted a good list of priorities on our main group page. I can't wait to see some deliverables!

-- [AndrewKoehring](#) - 10 Jul 2007

A Possible Lead

It seems that [this guy](#) has ideas somewhat freakishly similar to ours. I sent him an email...we'll see how that goes.

-- [JanaLepon](#) - 10 Jul 2007

Control

A category, Minor Motor Control, is born. Check it out on the Background Research page and add your own ideas for controllers, microcontrollers, supercontrollers, metacontrollers, and, of course, remote controllers. I think we agreed last meeting that the PDA has a lot of potential for making otherwise impossible gui navigation easy, efficient, and eventually, available equally to almost anyone. Work with me here. A big objective in this project is designing an interface that is so intuitive that it can become ubiquitous. As long as we keep the devices democratic (as affordable and as portable as possible), with the help of commercial products that are cheap and already on the market, our interface will move closer and closer to being able to be used anywhere by anyone. The dream of an augmented world might come true: a hybrid of second life and google earth on a mobile computing device is a real practical possibility. This blog is a safe place for scary ideas... I feel much better now.

-- [TonyCarr](#) - 5 July 2007

First Meeting: Mostly Harmless (June 27)

Basically we threw an imaginary ticker tape parade for Jana since she got the SL client to run on Linux. They haven't gotten going in the C4 yet, but they are ready to go as soon as possible. Ken's gonna get them some sample code to work with soon. Hopefully, they'll get in there by week's end. Quick meeting, so I don't have anything more to say.

It Works

...and it seems faster than the Windows client, too. Updated compile/run instructions are up. w00t.

-- [JanaLepon](#) - 26 Jun 2007

Compiling Shoes

Compiling: I think I have it working. Rather, it's currently compiling, but I won't know if it worked until it's done, which will probably be in about an hour. I put up some DIY instructions [here](#).

ETA: Turns out my account was on a tiny server, and I ran out of space when compiling on my network drive. It's being moved, but I probably won't get to finish this thing until tomorrow morning.

Shoes: Somebody made a pair of shoes that let you move around in a cave without walking into the walls. I think they look dangerous, but it's a cool idea.

-- JanaLepon - 26 Jun 2007

The Dream

Second Earth

It might not happen tomorrow, but it will happen.

-- TonyCarr - 24 Jun 2007

Schedule Redux

I just set up a wikified schedule that's a little easier to read than the excel file. It's pretty straightforward, but I included a link to the formatting page anyway. Putting everything in initially is a little tedious, and we need to regroup and edit our original plan, so I've only got the next week filled out. I figure we can talk about it and fill the rest in this weekend. Also, we need to coordinate C4 trips with Ken.

-- JanaLepon - 20 Jun 2007

First Meeting: A New Hope (June 20th)

It is decided. We are moving forward with the Motion Analysis infrared tracking system currently installed in the C4. We may use Conduit in the future, but for now the interns are going to look at VR Juggler and the SL source code to develop their own implementation. Ken is gonna supply them with a bit of starter material, and by the end of next week they should be starting to develop an app.

Until the juggler/C4 stuff gets moving, it will be a good idea to get a jump on gesture recognition. How are we going to use the tracking output? Start thinking of gestures you may want to use, and then think of ways that those movements could be captured.

The schedule in place is an ok start, but it still needs some work. Add more detail to what work is being done. Include milestones as well.

-- AndrewKoehring - 20 Jun 2007

Schedule

We figured out the tentative day by day schedule to the last day of the program. The **_SCHEDULE_** is an excel file.

-- OleksiyGolovin - 20 Jun 2007

Eureka

Today came with a bit of a surprise. As Tony just mentioned, we will have access to the Motion Analysis capture system set up in the C4. That itself is very cool as it could be a great tool for an awesome interface. Even more good news was that Mechdyne/Fakespace was also working in the cave with something they call Conduit. As explained to me, it is an interceptor that grabs any OpenGL? commands from an application. Then, it takes

that information and re-renders the scene for the VR system. They even had a Second Life module they could show us. The framerate was pretty choppy, but it was cool to see SL in that environment. I'd be shocked if we don't wind up using one or both of these technologies in our project.

-- [AndrewKoehring](#) - 18 Jun 2007

Just FYI, did a look up after the visit to the C4 and found this: http://www.vrco.com/Conduit/OverviewConduit.html

It's developed by a company called VRCO which is a sub of Mechdyne (not surprising). Apparently it's been put to use with:
- Google earth
- ProE

-- [EricFoo](#) - 19 Jun 2007

Here is what we are working with...

Motion Analysis : Hawk Digital System [Shiny Page](#) [Specs Page](#) Are there any webcams up for grabs?

-- [TonyCarr](#) - 18 Jun 2007

amBX

I ran across this [press release](#) today. Basically, Linden partnered up with Philips in March to integrate SL and amBX. I was just thinking that if they actually follow through with it, this would make our project a thousand times more awesome when it's done.

-- [JanaLepon](#) - 14 Jun 2007

Um, wow.

http://blog.secondlife.com/2007/02/20/augmented-virtual-reality/

I'm not sure how I missed this before, but somebody's been working with augmented reality in SL and posting about it on the official SL blog. I'm feeling equal parts dumb and excited right now. This one post talks a little about what he's doing, but there's a link to his page where I can download the code and hopefully learn more details about what he's doing. I know what I'll be doing for the next few days...

-- [JanaLepon](#) - 13 Jun 2007

First Meeting: With A Vengeance (June 13th)

We went through what had been put up on the [BackgroundResearch](#) page. While the interaction method hasn't been nailed down yet, there is still a preference for an optical system. The C4, apparently, still has some kind of camera rig set up in it. Eliot is going to find out more and see if it can stay several weeks longer. Tony had spent time looking at interfaces, and he was the one the most settled on an optical system. Jana still wasn't certain; she had researched more Second Life specific stuff. Alex was gone this week, so his empty seat didn't say much. The rumor was that he wanted to go with accelerometers. Also discussed was the list of interactions available in Second Life. The list was pretty expansive. It should be prioritized. What

(besides /dance) is the most important? A list of no more than 20 actions should be compiled (I'd recommend thinking of matching user inputs to those as well).

Tasks for the next few days:

By Monday - post a time line of research progress and deliverables. This doesn't have to be set in stone, but plan out until the end of the program how you intend to attack this project. Who's doing what next week? When is something going to be working?

By Wednesday - decide on an interface method. If we can keep the optical system around, how are we going to use it? Otherwise, you have to settle on another way to provide the user with an interface.

-- [AndrewKoehring](#) - 13 Jun 2007

Poking Around

I went through and made a list of gestures and actions today and put it on the background info page. None of the gestures are imperative to gameplay. Tony and I were thinking that with most of the gestures, it would be cool to have the cameras recognize the gestures themselves, but there needs to be a default mode that doesn't involve hard-coding anything in (to allow for custom gestures, etc.) This could probably be done with voice recognition if we're going that route.

-- [JanaLepon](#) - 12 Jun 2007

Inspiration for Controlling the GUI.

I found an [interesting clip from ATI](#), the graphics division of AMD. At the end of this clip, the character uses an augmented reality to interface with a complex... The point is that she uses very intuitive gestures. For example, to open a window, the user of such interface would tap on a virtual screen (in thin air) and then use hands or fingers to stretch out the window and move it around. Similarly, the targeting worked by dragging the reticle/crosshairs with fingers. To move about the field of view, the user would make a grabbing motion arbitrary on the screen with one hand and pull opposite the direction they wanted to move the view point/camara and etc.

Today, Eric showed us examples of OpenCV? . In couple of theses examples, the software could track faces or arbitrary parts of the body/clothing. If we could model a simple stick figure/skeleton and use it to compare to the user's motion, we could interpret different rapid or slow motions as commands for opening/closing windows, moving and interacting with the virtual world. In addition, we could include augmented reality into the interface or object interaction, since we could use various parts/points of the skeleton as anchor points for virtual objects.

What do you guys think of this?

-- [OleksiyGolovin](#) - 08 Jun 2007

America's Finest News Source

The Onion reminds us why our research is so important.

[Second Life Makes Dream Of Owning Fictitious Coffee Shop Come True](#)

-- [AndrewKoehring](#) - 07 Jun 2007

First Meeting II: Electric Boogaloo (June 6th)

Alex, Jana, and Tony all seem to be getting into the research. Ideas are...congealing. Eliot is excited about possibly using skin detection or some other kind of camera tracking, but everything is still up in the air. This week the interns will delegate out some specific areas to research. Specifically, we need to look into Second Life's interactions and see which ones we should/need to replace with a different interface. Also, the use of cameras should be investigated more: how will they work in the cave's lighting environment? how many cameras could we use? are we going to track skin, color, LEDs? Other tracking methods will continue to be researched (ultrasonic, magnetic, accelerometers). Ken brought in one of the bend sensing gloves to look at as a potential device. It may work; it may be a piece of junk. We need to play with it a little more.

edit: I added the [BackgroundResearch](#) page for you all to log everything you've found with some comments on potential uses.

-- [AndrewKoehring](#) - 07 Jun 2007

Starting points

These are going to be of varying use, but here are some links I've found:

[Object manipulation via Arduino](#)

[Wiimote!](#)

[Same thing.](#)

[I'm not sure if this is relevant, but it's neat looking.](#)

[A finger mouse for navigation](#)

[Biofeedback interface for SL](#)

[Using a treadmill to walk in SL](#)

[Implications of voice-integration?](#)

-- [JanaLepon](#) - 05 Jun 2007

A Question of Hardware

Hi all! I, as the self-appointed specialist on the biobody, need to know what kind of tracking and haptics devices we have to work with, and what kind of budget will get us whatever we don't have to work with. In the meantime, here is an easy summary of the VR tech of today (...2004). [An Investigation of Current Virtual Reality Interfaces](#)

-- [TonyCarr](#)

First Meeting

The whole group met for the first time yesterday. Alex, Jana, and Tony introduced themselves and spoke briefly about their expectations and why they came here this summer. Me, a.k.a Andrew, a.k.a. the mentor, and Ken, our very own specialist/consultant, gave short intros about our work here at VRAC. Finally, Eliot, a.k.a. the boss, presented his goals for the project. Right now things are very open ended, but that allows for a lot of research freedom for our new interns to run with. In the next 1-2 weeks, plans should start to come together as the three of them solidify some ideas.

-- [AndrewKoehring](#) - 31 May 2007

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