**University
of Victoria**

Project Name:

3D Stereo Navigation

Team Members:

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UVic Advisors:
Dr. Fayez Gebali
Dr. Haytham El Miligi

Date:	LOG ENTRY TEMPLATE (newest entry at Top)
Members Present:	
Topics Discussed:	● Topic 1 ● Topic 2
Action Items	
Item 1:	
To be completed by:	
Target Deadline:	
Completed? (Y/N)	
Item 2:	
To be completed by:	
Target Deadline:	
Completed? (Y/N)	

Date:	**Nov 29, 2012 - Final Semester Meet**
Members Present:	Carissa, Sean, Ben, Haytham, Gebali, (matt in lab)
Topics Discussed:	● Matt had adapted Sean's "Walking" m-file in

	MATLAB and has added some other sounds to it. Now a sound file with a person walking around the room doing various tasks. 3D effect is very prominent. ● Sean and Matt record the binaural sounds for upload to website ● Carissa worked on Website content ● Write final report
Action Items	
Item 1:	Finish Abstract, Conclusion, and Website Content
To be completed by:	Carissa
Target Deadline:	Dec 2
Completed? (Y/N)	Y
Item 2:	Upload remaining website content: documents, demos, etc
To be completed by:	Ben
Target Deadline:	Dec 2
Completed? (Y/N)	Y
Item 3:	Edit and format final report doc
To be completed by:	Sean
Target Deadline:	Dec 2
Completed? (Y/N)	Y

Date:	**Nov 28, 2012 - Weekly Group Meet**
Members Present:	Carissa, Sean, Ben, Matt
Topics Discussed:	● Carissa and Ben worked on Website Content ● Sean and Matt worked on debugging Sean's 'walking' m-file working in MATLAB - almost complete. ● Final meeting setup for Saturday. Be prepared to write!
Action Items	

Item 1:	Keep working on Walking M-File
To be completed by:	Sean and Matt
Target Deadline:	Dec 1st meeting
Completed? (Y/N)	Y
Item 2:	Keep working on website content
To be completed by:	Carissa and Ben
Target Deadline:	Dec 1st Meeting
Completed? (Y/N)	Y

Date:	**Nov 26, 2012 - Weekly Advisory**
Members Present:	Carissa, Sean, Ben, Matt, Haytham, Gebali,
Topics Discussed:	- Discussed paper submission to Nunavut Undergrad Journal. Only need to write one report for submission - Sean explains the trigonometry behind is new undertaking: the sound of man walking in a room. He can't quite figure out why the convolution of the sample is introducing zeros into the array. Causing sound distortion. - Discussed postponing interactive GUI for Dec 3rd deadline. Possibly too ambitious at this time in the semester.
Action Items	
Item 1:	Debug walking.m File
To be completed by:	Sean, Matt
Target Deadline:	Nov 28 Meeting
Completed? (Y/N)	Y
Item 2:	Start writing website Content
To be completed by:	Carissa, Ben
Target Deadline:	Nov 28 Meeting

Completed? (Y/N)	Y

Date:	**Nov 25, 2012 - Weekend Skype Meeting**
Members Present:	Carissa, Sean, Ben, Matt
Topics Discussed:	- No signification work on MATLAB sound files. - Ben has created a shell for our website - Everyone needs to submit bios - Website content is discussed and old 399 sites are reviewed. Wont need to be too extravagant. - Carissa has developed a 3D graphic with a cubed box in a room. no user inputs implemented yet.
Action Items	
Item 1:	Continue playing in MATLAB
To be completed by:	Sean, Matt
Target Deadline:	Nov 28 Next Meeting
Completed? (Y/N)	Y
Item 2:	Begin writing website content, create a google doc
To be completed by:	Carissa / Ben
Target Deadline:	Nov 28 Next Meeting
Completed? (Y/N)	Y
Item 2:	Continue looking into 3D GUI (not highest priority)
To be completed by:	Carissa
Target Deadline:	Nov 28 Next Meeting
Completed? (Y/N)	Y

Date:	**Nov 19, 2012 - Weekly Advisory**
Members Present:	Carissa, Sean, Ben, Matt, Gebali, (Haytham busy)
Topics Discussed:	Discussed the "muffling" of the high frequencies of

	the single-point source sound file. ● Gebali suggests plotting source file before and after convolution to see if high frequencies are being squelched ● Distance in the sound file still not very prominent. Sound file sounds like it is still close to head, but either quieter or louder. ● Carissa reports on her Visual Studio tutorial training. Learning to draw in 2D using directX components
Action Items	
Item 1:	Continuing looking at distance issues
To be completed by:	Sean, Matt
Target Deadline:	Nov 25, Next Meeting
Completed? (Y/N)	Y
Item 2:	Continue developing GUI in visual studio
To be completed by:	Carissa
Target Deadline:	Nov 25, Next Meeting
Completed? (Y/N)	Y

Date:	**Nov 18, 2012 - Group Skype Meeting**
Members Present:	Carissa, Sean, Ben, Matt
Topics Discussed:	● Progress made on the filtering! From Matt: "I've also made some progress this weekend on the distance/wav file front. I've got it figured so I can use any wav file, chop it up and move it around in space. Using a continuous sound like a guitar riff sounds a little choppy when each new azimuth/elevation is filtered. Lots of work to be done on how to set up the function calls etc, but distance is sounding somewhat reasonable (using 1/d attenuation combined with a filter set to have an appropriate cutoff for that distance and 30dB/dec roll off"

	● Sean also seems to have some of the core working.
	 ● Ben has emailed someone about UVic web hosting. 10 MB file limit may push us to other options? Look into alternative web hosting. Can UVic fund this?
	 ● GUI updates from Carissa:
	    ○ has downloaded Visual Studio through "Dreamspark" (others should download Visual Studio as well). Can develop GUI using DirectX (Direct3D).
	    ○ Matlab COMs can be created using Microsoft Builder NE. COMs then accessible through Visual Studio(Carissa has this on her PC)
	    ○ O/P sound directly from MATLAB files? or Pass to VS?
	    ○ Is *real time* movement going to be difficult? We will start with discrete movements of sounds. (move then play sound as opposed to playing sound while moving)
	    ○

Action Items	
Item 1:	Combine Sean and Matt's MATLAB code
To be completed by:	Sean and Matt
Target Deadline:	Nov 19, 2012 (after advisory meeting)
Completed? (Y/N)	
Item 2:	Develop C++/.NET GUI in VS
To be completed by:	Carissa
Target Deadline:	Dec 3 (with updates to group)
Completed? (Y/N)	
Item 3:	Report on web hosting findings
To be completed by:	Ben
Target Deadline:	Nov 21, 2012
Completed? (Y/N)	

Date:	**Nov 13, 2012 - BWCAA Conference**
Members Present:	Carissa, Haytham, Gebali

Topics Discussed:	● Presented "Future Work" for GPS Waypoint application -> 3D Audio Compass Feature
	● Received Feedback:
	  ○ Good idea, but concerns with wearing headphones all the time
	  ○ Explained it as a "help" feature, not the principal guiding feature.

Action Items	n/a

Date:	**Nov 10, 2012 - Weekend Group Meeting**
Members Present:	Matt, Ben, Carissa, Sean
Topics Discussed:	● Focused energy on figuring out "distance" issue ● Possibly need to use lowpass filter on the input sound in order to mimic sound attenuation as a function of "distance" as well. ● Matt found a filter that might work. Will upload .xlxs file to dropbox ● Dug into CIPIC code, finding similar filtering methods in their approach. They are <u>not</u> taking into account distance in attenuation of .wav file before HRTF is applied. Learning from their code, developing our own functions on the side ● Determined that GUIDE will not be something we can display on a webpage. Need to use something else? Java? .NET? Would need to find a way to link MATLAB files to GUI platform development. Carissa and Matt have C++/.NET development experience ● Sean able to reproduce 3D sounds using CIPIC function calls. Can adjust position. ● Having issues with filtering. Can Dr. Driessen help us? Carissa to send an email.
Action Items	
Item 1:	Continue digging into CIPIC code so we can implement attenuation (as a function of distance)
To be completed by:	Ben, Sean

Target Deadline:	Next Meeting
Completed? (Y/N)	**Y**
Item 2:	Look into GUI development in C++/.NET
To be completed by:	Carissa, Matt
Target Deadline:	Next Meeting
Completed? (Y/N)	**Y**
Item 3:	Look into webhosting services is UVic
To be completed by:	Ben
Target Deadline:	Next Meeting
Completed? (Y/N)	**Y**
Item 4:	Email Dr. Driessen about MATLAB filtering
To be completed by:	Carissa
Target Deadline:	Next Meeting
Completed? (Y/N)	**Y (but no reply from Driessen)**

Date:	**Nov 7, 2012 - Weekly Group Meet**
Members Present:	Carissa, Sean, Matt, Ben
Topics Discussed:	- Discussed ways to calibrate user to Subjects listed in CIPIC HRIR database. Series of Y/N Questions? - Played in MATLAB with existing code offered by CIPIC database - Apparent "distance" of sounds played in CIPIC library sound very close to head. How can we get more accurate "distance" perception? - Considering developing GUI for website using GUIDE for MATLAB. How will we distribute this on website? - Discussed reverberation function Sean has used to create more "realistic sound"
Action Items	

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Item 1:	Investigate "Distance" problems
To be completed by:	All
Target Deadline:	Mid-Nov
Completed? (Y/N)	**Y**
Item 2:	Look for GUIDE tutorials
To be completed by:	Ben
Target Deadline:	Next Meeting
Completed? (Y/N)	**Y**
Item 3:	Investigate Possible Calibration Question Heirarchy
To be completed by:	All
Target Deadline:	pending until after core algorithm dev
Completed? (Y/N)	n/a
Item 4:	Look into 3D Animation GUI Techniques
To be completed by:	Carissa
Target Deadline:	Next Meeting
Completed? (Y/N)	**Y**

Date:	**Nov 5, 2012 - Weekly Advisory**
Members Present:	Carissa, Sean, Ben, Haytham, Gebali, (Matt in Lab)
Topics Discussed:	- No longer working towards Conference Paper - Possible paper to be submitted to undergrad journal - Focus -> Core algorithms in MATLAB - UVic BWCAA Conference, one memeber needs to present 3D Audio components
Action Items	
Item 1:	Get core 3D algorithm functioning

To be completed by:	Carissa, Ben, Matt, Sean
Target Deadline:	Mid November
Completed? (Y/N)	
Item 2:	Member to Present 3D Audio Compass as BWCAA
To be completed by:	Carissa
Target Deadline:	Nov 13, 2012
Completed? (Y/N)	**Y**

Date:	**Oct 31, 2012 - Weekly Group Meet**
Members Present:	Carissa, Sean, Ben, Matt
Topics Discussed:	- Talked about feasibility of conference paper submission - Will we have enough 'new' work to claim project as our own? Will it be innovative enough? How can we prove that the audio guidance of blind people is safe/feasible? Do we know it would be better? What would we propose as our deliverables in the conference paper? What if we don't deliver? How would we answer the many questions associated with guiding the blind without testing performed on blind individuals? - So if the research paper is confined by how much preparation time we have, can we propose to do something completely different? - Disscussed innovative calibration techniques. Can HRIRs be digitally synthesized with the scan of the head/pinna? Or even a photo? - Set goal for each of us to acquaint ourselves with MATLAB database (CIPIC database). Find subject that is closest to our ourselves for testing. (w/o worry about anthropometric measurements for now) - Talked about HRTF funtional DSP mathematics ans z-transforms.
Action Items	
Item 1:	Find appropriate CIPIC subject for self
To be completed by:	All

Target Deadline:	Nov 7, 2012
Completed? (Y/N)	**Y**
Item 2:	Familiarize with CIPIC Database on MATLAB
To be completed by:	All
Target Deadline:	Ongoing
Completed? (Y/N)	n/a

Date:	**Oct 29, 2012 - Weekly Advisory**
Members Present:	Carissa, Sean, Ben, Matt, Haytham, Gebali
Topics Discussed:	- Discussed conference paper submission; 3D Audio to be tied in with GPS Waypoint App - Need to Create project plan or gant chart with near term milestones - Discussed possible presentation styles for website launch: 3D fly swatting? Integrated Video Stream - Need to keep Focus on biomed applications: austistic training? CanGo applications/testing with program launching in Calgary
Action Items	
Item 1:	Create Near-Term milestones
To be completed by:	Entire Team
Target Deadline:	Oct 31
Completed? (Y/N)	**Y**

Date:	**Oct 22, 2012**
Members Present:	Sean, Carissa, Ben, Matt, Dr. Haytham, Dr. Gebali
Topics Discussed:	- Calibration as a final goal of the project - Diagnostics -> application 3D audio concert simulation (adding sophistication) 3D audio as a base project (for 399) - Developing apps, games, etc. upon this base (for

	499) ● Focus less on the GPS waypoint application (more of an "if there's time" project)
Action Items	n/a

Date:	Oct 15, 2012
Members Present:	Carissa, Matt, Ben, Haytham, CanGo Team (Leo/Nathaneal & Co.)
Topics Discussed:	- Presented 3D Audio Compass topic. Link to Presentation http://prezi.com/pd6ijzc9gjzr/3d-audio-navigation-tool/?auth_key=0f965c545b31fe6bd549194879f0dc b0b0f99fde - CanGo team showed interested and posed questions: - How can we know 3D audio will be better than verbal cues? - Who will our target demographic be? - Will we be able to use the feature/app with it in our pocket? - How will the feature interfere with normal environmental sensory input? - How will accuracy affect feasibility?
Action Items	
Item 1:	Read over follow-up correspondence from Leo and Nathaneal. - Audio_wayfinding.7z - Cognitive_Stepping_Stones_App.doc
To be completed by:	Carissa, Sean, Matt, Ben
Target Deadline:	Oct 25, 2012
Item 2:	Keep in touch with Nathaneal and Leo regarding progress or for advisory.
To be completed by:	All group members
Target Deadline:	on-going

Date:	Oct 14, 2012

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Members Present:	Sean, Carissa, Ben, Matt
Topics Discussed:	- Wrote up Interim Report (see report for details of discussions) - Discussed to-do items - Need existing Python code - Need to look into how to port that code to C++ - Need to brush up on GPS jargon and look into accuracy issues - Need to determine which mobileOS platform we will be working off of. - Need to look into DSP mathematics for Left and Right head-related transfer functions(HRTF) and position-dependeant head related impulse resonse (HRIR) . Look at implementing through MATLAB first.
Action Items	
Item 1:	Research mathematics for 3D Audio Binaural Synthesis for IIR and ITR.
To be completed by:	Sean
Target Deadline:	Oct 28, 2012
Item 2:	Read Up on OpenAL
To be completed by:	Carissa
Target Deadline:	Oct 28, 2012
Item 3:	Acquiring Python source code for existing GPS Waypoint application and looking into porting it to C++.
To be completed by:	Ben
Target Deadline:	Oct 28, 2012
Item 4:	General GPS Research for the Waypoint Application
To be completed by:	Matt
Target Deadline:	Oct 28, 2012

Date:	Oct 13, 2012
Members Present:	Sean, Carissa
Topics Discussed:	- Reviewed research acquired for 3D Audio Binaural Synthesis. - Discussed use of OpenAL Libraries for stereo sound alorithm development - Discussed mathematical concepts required to generate the left and right audio channels. - Discussed use of MatLab to generate simulations. - Compiled findings in a brief presentation called "Digital 3D Audio Compass" - Link to Prezi Presentation: //prezi.com/pd6ijzc9gjzr/3d-audio-navigation-tool/?auth_key=0f965c545b31fe6bd549194879f0dc b0b0f99fde
Action Items	
Item 1:	Practice and present presentation to CanGo Committee
To be completed by:	Carissa
Target Deadline:	Oct 14, 2012

Date:	Oct 3, 2010
Members Present:	Carissa (Interviewing Ben, Matt)
Topics Discussed:	- Project member interview - Discussed project initiative with Matt and Ben - Offered two remaining team positions to Ben and Matt
Action Items	
Item 1:	Email Tau Lu Project Team: Carissa, Sean, Ben and Matt
To be completed by:	Carissa
Target Deadline:	Oct 12, 2012
Item 2:	Setup Google Group forum used for informal team interaction and

	communciation
To be completed by:	Carissa
Target Deadline:	ASAP
Item 3:	Setup Team Email Account ○ 3DStereoNav@gmail.com
To be completed by:	Sean
Target Deadline:	ASAP
Item 4:	Setup Fileshare Dropbox Account ○ username: 3DStereoNav@gmail.com
To be completed by:	Sean
Target Deadline:	ASAP

Date:	**Oct 1, 2012**
Members Present:	Carissa, Dr. Fayez, Dr. Hytham, CanGo Committee
Topics Discussed:	● Carissa Introduced herself and briefly pitched 3D Audio compass feature ● Other Miscellaneous CanGo Project topics dicussed
Action Items:	
Item 1:	Prepare presentation of feasibility of the implementation of the Binaural Synthesis for the 3D Audio compass feature. To be presented at next CanGo meeting. (Oct 15)
To be completed by:	Carissa
Target Deadline:	Oct 15th, 2012

Date:	**Sept 28, 2010**

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Members Present:	Carissa, Dr. Fayez, Dr. Haytham
Topics Discussed:	- Met to discuss possible 499 Projects - Discussed working on GPS Waypoint Application audio GPS project; mobile application partially developed. (Going with this project) - Discussed wifi access point project for Victoria transit. (Not going with this project) - Discussed possible addition of a 3D Audio voice compass as an added help feature during trips.
Action Items	
Item 1:	Attend CanAssist Meeting on Oct 1, 2012 - Introductions - Breifly discuss 3D Audio Feature
To be completed by:	Carissa
Target Deadline:	Oct 1, 2012
Item 2:	Gather Group Members from 399 Course - Look into getting Sean Cunningham registered into 399 by correspondence. - Pitch project to 399 class on Oct 2.
To be completed by:	Carissa, Dr. Fayez
Target Deadline:	Oct 12, 2012