

<b>Summer 2014</b>	<b>Achievements</b>
<b>Overall Project:</b>	
August 25th	Secured Funding from ISAT department (\$513)
<b>Writing &amp; Research</b>	
	No writing worked on during Summer 2014
<b>Zome Construction</b>	
July 25th	Contact made with ZomeBuilder creator
	Rob informed he would act as a consultant (aka for money)
July 28th	Plans established to construct Zome
<b>Sensors &amp; Equipment</b>	
	No sensors/equipment worked on during Summer 2014

<b>September 2014</b>	<b>Achievements</b>
<b>Overall Project:</b>	
September 8th	First team meeting of 499B -plan of action of Writing & Research, Zome Construction, and Sensors & Equipment
September 14th	Talked to Dr. Frysinger about Honors Project -established ISAT 447 would provide insight to UX/UI design for project
September 15 <sup>th</sup>	Team meeting -Zome construction underway using Sketchup -Music/Lights using Hinkle's Lighting Sequencer (HLS) -Arduino for occupancy detection
<b>Writing &amp; Research</b>	
Throughout September	-Research done into Sketchup -Research done into Hinkle's Lighting Sequencer -Research to use Arduino for occupancy detection
<b>Zome Construction</b>	
September 10th	Zome will be: -based on 'Silver Theory' of proportions -consist of 8 petals -6 levels high
September 15 <sup>th</sup> -17 <sup>th</sup>	Learned how to operate SketchUp -created full zonohedron geometric structure using polar zonohedron extension
September 23 <sup>rd</sup> -26th	Edited shape to resemble "dome"-like structure -edited panels -cut out doorway -adjusted 6 <sup>th</sup> level for half-size
<b>Sensors &amp; Equipment</b>	
September 29th	Met with Morgan to look at HLS -Awful software to work with... not reasonable for project -begin research into new software to use

<b>October 2014</b>	<b>Achievements</b>
<b>Overall Project:</b>	
October 6th	<ul style="list-style-type: none"> <li>Team meeting</li> <li>-Progress in Sketchup/ZomeBuilder</li> <li>-Alternatives to HLS</li> <li>-Arduino progress</li> </ul>
October 13th	<ul style="list-style-type: none"> <li>Team Meeting</li> <li>-Status of Zome construction</li> <li>-Arduino progress &amp; Makey-Makey</li> </ul>
October 25 <sup>th</sup>	<ul style="list-style-type: none"> <li>All team members granted access to HHS 3022 by Dr. Salib</li> <li>-common area to work in... many computers and equipment to use for sensor detection</li> </ul>
October 27th	<ul style="list-style-type: none"> <li>Team Meeting</li> <li>-Hold-ups in Sketchup</li> <li>-Alternatives to any light sequencer</li> </ul>
<b>Writing &amp; Research</b>	
Throughout October	<ul style="list-style-type: none"> <li>-Researching means to print rhombs and components... can't just 3D print directly from Sketchup – can import to CAD!</li> <li>-Researching alternatives to HLS: software extremely difficult to use and usage not detailed well SO began researching into OLA Project/DMX/etc. but software still difficult to use</li> </ul>
<b>Zome Construction</b>	
October 9 <sup>th</sup>	<ul style="list-style-type: none"> <li>Change from 8 to 9 petals</li> <li>-decrease size of panel; fit standard plywood dimensions (for future full scale build)</li> </ul>
October 14 <sup>th</sup>	<ul style="list-style-type: none"> <li>Able to cut-out customized shapes from within panel</li> <li>-allow for custom row designs</li> <li>-hopefully create custom designs for each team member to use on 5<sup>th</sup> row (make our mark!)</li> </ul>
October 16 <sup>th</sup> -27th	<ul style="list-style-type: none"> <li>Severe concerns with how connectors will actually connect (not customizable from SketchUp document)</li> </ul>
October 30th	<ul style="list-style-type: none"> <li>Contact established with Dr. Egekwu of ISAT for information on JMU's 3-D printing facilities</li> </ul>
<b>Sensors &amp; Equipment</b>	
October 14-16	<ul style="list-style-type: none"> <li>Attempt to understand alternative software for light sequencing</li> <li>-other software are just as confusing... time to reevaluate how lights can be displayed to music</li> </ul>

November 2014	Achievements
<b>Overall Project:</b>	
November 3rd	Team meeting -3D printing lab status in ENGR - Guessing how much 3D printing is going to cost (a lot probably)
November 17th	Team Meeting -Status of Zome construction -Arduino progress & Makey-Makey
<b>Writing &amp; Research</b>	
November 3rd	Meeting with Nicole to begin 'Justification' of project -includes research into Background/Introduction
November 16 <sup>th</sup>	Continued working on 'Justification' of project -delves into differences of Interactive and Participatory art pieces -looked into concept of Sales Funnel -Urban art concept! -Art in education concept!
<b>Zome Construction</b>	
November 2nd	Meet with Dr. Egekwu to discuss 3D printing requirements
November 5th	Dr. Egekwu forwarded conversation to meet with Dr. Wild of ENGR department
November 7 <sup>th</sup> -21 <sup>st</sup>	Acquired software from Rob Bell -ZomeBuilder 1.0 -generates panels and connectors specific to dimensions of zome -created and troubleshooted specifics for our project -hopefully will resolve issue with connectors
November 18th	Exchange with Dr. Egekwu confirming still no contact with Dr. Wild of ENGR department
November 22 <sup>nd</sup> -31 <sup>st</sup>	Finalized panel design to match with generated connector via ZomeBuilder 1.0 -issues with editing connectors to meet our needs -hopefully can fix using AutoCAD or SketchUp (maybe?) -need to export to .STL file for 3D Printing
<b>Sensors &amp; Equipment</b>	

<b>December 2014</b>	<b>Achievements</b>
<b>Overall Project:</b>	
December 8th	Team Meeting -establishing expectations of work over break -standstill on how to deal with lights/music
<b>Writing &amp; Research</b>	
	No Writing throughout December
<b>Zome Construction</b>	
	No Zome Construction throughout December
<b>Sensors &amp; Equipment</b>	

<b>January 2015</b>	<b>Achievements</b>
<b>Overall Project:</b>	
January 13th	<ul style="list-style-type: none"> <li>Team Meeting</li> <li>-idea of FFT to display light shows on independently controlled LEDs</li> <li>-bins to hold different playlists/tracks based on occupancy</li> </ul>
January 21 <sup>st</sup>	Discussion with Dr. Salib about use of Arduino to detect occupancy
January 24 <sup>th</sup>	Dr. Salib's email with previous project's use of Arduino
<b>Writing &amp; Research</b>	
January 21 <sup>st</sup>	<ul style="list-style-type: none"> <li>Continued working on 'Justification'</li> <li>-designing for fun</li> <li>-sales funnel</li> <li>-effects on disabled</li> <li>-meaningful communication</li> </ul>
<b>Zome Construction</b>	
January 12 <sup>th</sup> -26 <sup>th</sup>	<ul style="list-style-type: none"> <li>Divided zome into individual pieces</li> <li>-in order to prepare for printing</li> <li>-edited as necessary</li> </ul>
<b>Sensors &amp; Equipment</b>	
January 13th	Instructables on FFT and lightshows
January 19th	<ul style="list-style-type: none"> <li>Using Arduino as means to detect occupancy</li> <li>-breadboard connections</li> <li>-receiver and transmitter requirements</li> </ul>
January 26th	<ul style="list-style-type: none"> <li>Setup Arduino according to previous group project</li> <li>-wiring not correct for resistors, correction</li> <li>-receiving output but with errors</li> <li>-Arduino code written in English... needs to be converted back</li> </ul>
January 27th	<ul style="list-style-type: none"> <li>Setup Arduino according to yesterday's wiring</li> <li>-converted code for Arduino readability - error!</li> <li>--discovered error (syntax [hidden characters]) corrected and output flows properly</li> <li>-Makey-Makey connection to MIXX software to play music according to occupancy levels</li> <li>--errors (Arduino can't process two inputs/outputs -&gt; might need to look into Raspberry Pi)</li> </ul>

<b>February 2015</b>	<b>Status</b>
<b>Overall Project:</b>	
February 2 <sup>nd</sup>	Team Meeting -3D printing issues -> use of plexiglass instead of polymer if we can't get lab access
February 10 <sup>th</sup>	Team Meeting -Arduino/Makey-Makey demo -Discussion of plans for 3D printing (cost way lower!!!)
February 16 <sup>th</sup>	-Email restating need for access to 3D printing lab & what 3D printer model we will be using -Response from Dr. Wild – access form submitted & Makerbot Replicator II is model type
<b>Writing &amp; Research</b>	
February 2 <sup>nd</sup>	Write up of Methods/Materials for Arduino/Makey-Makey setup
<b>Zome Construction</b>	
February 18 <sup>th</sup>	3D printing polymer purchased for Replicator II on Amazon!
February 20 <sup>th</sup>	3D printing polymer arrived
February 23 <sup>rd</sup>	Accessed 3D printing lab -learn how to load/unload polymer -understand ReplicatorG software to generate GCode (necessary for 3D printer to print) -printed a model with a 'raft' in order to understand how printer worked -connector not printing well due to missing connector portion from overlap
February 24 <sup>th</sup>	-solved issue with missing portion of connector during print Began 3D printing more panels, connectors potentially will not connect well -issues with printing connectors (maybe not enough layers?)
February 26 <sup>th</sup>	-began printing second row to assess issue with connectors not lining up panels correctly --angle of connector off due to 3D nature of plane (needs to be fixed!)
February 27 <sup>th</sup>	More 3D printing! -connectors work with corrected angle HOORAY -concern with connector angle for 2 <sup>nd</sup> row vertical connector—will assess as time comes -finishing printing entire first row!
<b>Sensors &amp; Equipment</b>	
February 1 <sup>st</sup>	Raspberry Pi SD card formatting
February 11 <sup>th</sup>	Received Raspberry Pi from Dr. Salib
February 17 <sup>th</sup>	Attempted booting of Raspberry Pi -need a physical display – VGA/DVI/Composite

	connections all failed
February 18 <sup>th</sup>	<p>Connected Raspberry Pi to display</p> <ul style="list-style-type: none"> <li>-downloaded OS to Pi</li> <li>--partition SD card and download NOOBS</li> <li>-installed LightShowPi to Raspberry Pi in order to do FFT transforms on music</li> <li>-configured Breadboard to connect RPi to board in order to transmit signal</li> <li>-configured 8 LED lights to GPIO Ports in order to render FFT transformation</li> <li>-played sample music while lights flashed</li> </ul>
February 19 <sup>th</sup>	<p>ISSUE – Arduino at 5V, RPi at 3.3V how will we transmit signal?</p> <ul style="list-style-type: none"> <li>--STEP DOWN with resistors in parallel/series</li> <li>-able to transmit occupancy count from Arduino to RPi via GPIO programmed to INPUT on RPi</li> <li>-python script reads occupancy count and determines what music volume to play according to loop</li> <li>***need to order independently controlled LED light strip from AdaFruit</li> <li>--will allow for multiple lights to be controlled on a strand in order to display full FFT</li> <li>--potentially program intensity of LEDs to respond to amplitude?</li> </ul>



<b>March 2015</b>	<b>Status</b>
<b>Overall Project:</b>	
<b>Writing &amp; Research</b>	
March 2 <sup>nd</sup> -6 <sup>th</sup>	Write-up of zome and sensors started
March 23 <sup>rd</sup> -27 <sup>th</sup>	More write up of background research Formatting of thesis finalized Majority of pictures have been captured
<b>Zome Construction</b>	
March 2 <sup>nd</sup> -6 <sup>th</sup>	3D printing of zome continues 3 <sup>rd</sup> row and connectors
March 16 <sup>th</sup> -20 <sup>th</sup>	3D printing continues 4 <sup>th</sup> row and start of 5 <sup>th</sup> row w/ connectors -issue with horizontal connectors not being spaced correctly
March 23 <sup>rd</sup> -27 <sup>th</sup>	3D printing continues issue with connector solved custom printing of fifth row decided --taught team how to use SketchUp in order to print everything designed 6 <sup>th</sup> row panel & vertical connector
March 30 <sup>th</sup> -31 <sup>st</sup>	Zome printing finished! (minus 2 panels from 5 <sup>th</sup> row)
<b>Sensors &amp; Equipment</b>	
March 2 <sup>nd</sup>	Ordered RGB LED strip and power supply, should be here by return from Spring Break... Discussion on how to deal with FFT flows in terms of column #s (hopefully 8!)
March 16 <sup>th</sup>	LED strip and power supply here! Followed Scott Driscoll's Instructable... nothing works...
March 17 <sup>th</sup>	Lights will not display, sound will not display (WIPE EVERYTHING FROM PI)
March 18 <sup>th</sup> -20 <sup>th</sup>	Everything is working, can run example.py script and play a song with sound AND lights
March 23 <sup>rd</sup>	And nothing works again... fried the power supply to the lights (great, have to order a new one).
March 24 <sup>th</sup> -March 31 <sup>st</sup>	New power supply, successfully turn on lights Connect Arduino to Pi in order to detect occupancy -music volume controlled by occupancy -lights still display based on song playing -trying to automate on boot but having issues of environment (might take longer than scope of thesis)

<b>April 2015</b>	<b>Status</b>
<b>Overall Project:</b>	
<b>Writing &amp; Research</b>	
April 2 <sup>nd</sup> -3 <sup>rd</sup>	Solid draft of paper written up Send to readers
April 5 <sup>th</sup> -6 <sup>th</sup>	Apply edits of readers! Send to readers Round 2
April 7 <sup>th</sup>	Apply all changes from readers Acquire signatures Submit to Honors Program!
<b>Zome Construction</b>	
March 1 <sup>st</sup>	Final panels printed. Zome finished.
<b>Sensors &amp; Equipment</b>	
April 1 <sup>st</sup> -3 <sup>rd</sup>	Finalize code in project
April 5 <sup>th</sup>	Finalize construction of sensors in laminate Clean up wire connections Sensors completed.