

Projects Portfolio

2024-07-10 17:23:33 - Personal website project portfolio

Listed the criteria's for the project of Systems Engineering on the page and filled out the text, hyperlinked buttons

The screenshot shows a web browser window with the URL <https://harshutammina.tech/systems-folio/>. The page title is "Systems Engineering". It features a sidebar with various icons and a main content area divided into four sections: "Criteria 1", "Criteria 2", "Criteria 3", and "Criteria 4". Each section contains a list of items and a "VIEW CRITERIA" button.

- Criteria 1:**
 - Content and Background
 - Problem & Solution
 - Evaluation Criteria
 - Design Brief
 - Influencing Factors & IPO Cycle
- Criteria 2:**
 - Research Ideas
 - Arduino Research
 - 3D Modelling & Sketching
 - Prototype
 - Circuit Attempt
- Criteria 3:**
 - Gantt Chart
 - Equipment List
 - Risk Assessment
 - Work Plan
- Criteria 4:**
 - Operational Health and Safety
 - Construction of System

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Added the part's list and the references that have been used for that criteria

Personal Criteria 3 - Harshavardhan Tammina

https://harshutammina.tech/project/systems-criteria-3/

	8	KDC	N/A	(Supplied)
RGB Strip	1	KDC	N/A	\$0 (Supplied)
Slide Potentiometer Fader Knobs	8	Classmate (3D Printed)	ALPS Fader Knob Lever 8x1x2 GrabCAD	\$0 (Supplied)
Aluminium Sheet 2 x 1200 x 2400mm	1	Capral Aluminium	2 x 1200 x 2400mm MF Sheet Aluminium Trade Centre	\$131.13 (Supplied)

References:

- [Systems Engineering Unit 3/4 SAT Gantt Chart](#)
- [CNC Router Risk Management Form](#)
- [Angle Grinder Risk Management Form](#)
- [Belt Sander Risk Management Form](#)
- [Pop Rivet-Gun Risk Assessment Form](#)

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Added an image of the designed circuitry and the risk assessment for tools used for the project

Personal Criteria 3 - Harshavardhan Tammina

https://harshutammina.tech/project/systems-criteria-3/

6	Pop Rivet-Gun	<ul style="list-style-type: none"> - Testing or operation - Parts of the plant disintegrating <p>Impact</p> <ul style="list-style-type: none"> - Flying Objects - Muscle Strain Noise - Pneumatic Pop Rivet-Guns can be loud 	Moderate – Major	<p>Ensuring appropriate PPE is worn while using the equipment</p> <p>Try to use normal Pop Rivet-Gun instead of Pneumatic, otherwise use in a ventilated area</p> <p>Inspect equipment prior use for potential hazards or damage</p>
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Circuit Diagram & Schematic: Workplan Task 7

2024-07-11 15:05:51 - Project portfolio personal website cont'd

Added the images for the Work Plan and the tasks that have been already completed

The screenshot shows a web-based project management interface. At the top, there's a navigation bar with links like 'Personal', 'Edit Project', 'Site Kit', and 'Enable Visual Builder'. Below the navigation is a table titled 'Work Plan Tasks 1-4' with two rows:

Programming	Term 2 School Holidays	Program the Arduino using the Arduino IDE software to meet the specific requirements of the DAW Controller.
Testing	Term 3 Week 1	11. Test the DAW Controller using a DAW such as Logic Pro to ensure code works along with all the wiring

Below the table is a section titled 'Work Plan Tasks 1-4' containing four images related to the project:

- A CNC machine cutting a piece of aluminum.
- A metal sheet with holes punched into it.
- A CNC machine in operation.
- A completed assembly or test setup on a workbench.

At the bottom is a 'Risk Assessment' table:

Stage	Machine	Identified Risk	Severity	Control Measures
		Impact and Cutting		Ensuring operator's hands and body parts are kept clear of moving parts.

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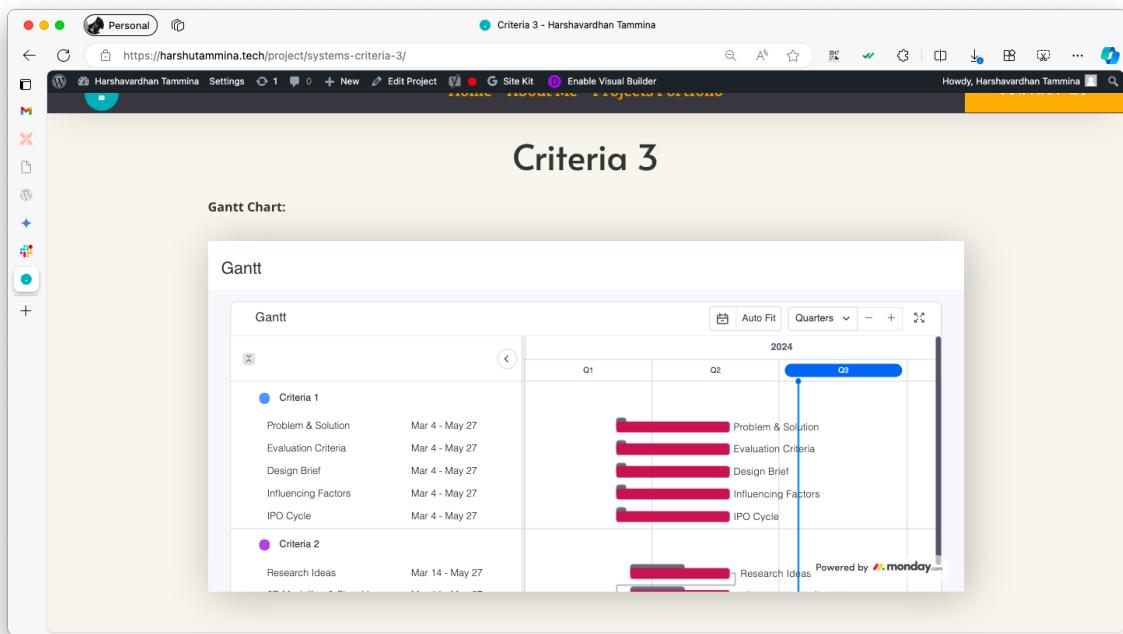
Created the work plan and added it to the website

The screenshot shows a web-based project management interface. At the top, there's a navigation bar with links like 'Personal', 'Edit Project', 'Site Kit', and 'Enable Visual Builder'. Below the navigation is a table titled 'Work Plan:' with 11 rows:

Stage	Week	Task
Prototype	7	1. CNC cut prototype of top and bottom enclosure pieces from 2mm aluminum sheet.
Prototype	7	2. Evaluate prototype and adjust design if necessary.
Production	8	3. Update CNC cutting files based on prototype evaluation.
Production	8	4. CNC cut final top and bottom enclosure pieces from 2mm aluminum sheet.
Finishing	9	5. Sand all aluminum pieces for a smooth finish.
Assembly	9	6. Pop-rivet sides (left, right, front, back) and bottom of enclosure. Ensure proper alignment and placement of rivets for a strong and secure assembly.
Electrical Design	10	7. Design a wiring diagram for the enclosure components. Design the wiring diagram using the software Fritzing which has all the parts required
Electrical Testing	10	8. Test the wiring diagram for accuracy using a breadboard. Wire accordingly as per the diagram created in Fritzing and make any changes as required
Assembly	11	9. Install wiring and components inside the enclosure. Install the wiring into the enclosure and place the components ready to be coded
Programming	Term 2 School Holidays	10. Program the Arduino to meet project requirements. Program the Arduino using the Arduino IDE software to meet the specific requirements of the DAW Controller.
Testing	Term 3 Week 1	11. Test the DAW Controller using a DAW such as Logic Pro to ensure code works along with all the wiring

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Created a GANTT chart using [Monday.com](#) and embedded it into the website using iframe



2024-07-12 00:19:29 - Project portfolio personal website cont'd

Added the text to the prototype section and a image carousel with the pics of the prototype

of Potentiometers are considered 'Analog' components, the Rotary Potentiometers will be connected from ports A0 to A7 whereas the Slide Potentiometers will be connected from A8 to A15. However, on the other-hand, the Toggle Switches are considered 'Digital' as they only output 1s and 0s, they will be connected to the digital ports of the system. Unfortunately, I was not able to design the circuit wiring of the Passive Mixer as, I was unable to find the correct parts in Fritzing, and two of the wiring design is still unfamiliar to me.

Prototype:

Originally, I designed a brief prototype using cardboard and making holes where the components will be placed; however, it came to my attention that it would be considered prototyping when I am testing the aluminum sheet with the CNC Router. During this process, many router bits were broken but in the end I had learnt the right way to overcome this issue!

2024-07-13 00:31:12 - Project portfolio cont;d

Wrote the Evaluation Criteria in the first criteria in the form of bullet pointed questions

Output: MIDI Signals to DAW through USB

Evaluation Criteria

- Does the DAW Controller work with multiple DAW Softwares?
- Has the final product (physical product excluding coding) been completed by Tuesday 16th July 2024?
- Has the controller been made with a budget of \$175?
- Has the project prototype been completed by 9th May 2024?
- Will the end customer be happy with the purchase of the product for the price of \$200-\$300?
- Can it run without an external power-source?
- Does the product work with Logic Pro?
- Would I be able to code the Arduino?
- Does it meet the dimensions of L x W x H 290mm x 240mm x 50mm?
- Is the product under 1kg so that it is portable to take everywhere?
- Does it have rubber feet to be able to stay still on a desk?
- Does it meet the stability of the SSL UF8?
- Does it meet the function of mixing with faders and knobs?
- Is it user-friendly and customisable?

2024-07-13 09:47:44 - Project portfolio personal website cont'd

Added the research information details along with an image gallery displaying the process

The screenshot shows a web browser window with a sidebar on the left containing various icons. The main content area has a header "Criteria 2 - Harshavardhan Tammina". Below the header, there are two sections: "Aluminium:" and "Enclosure Design:". The "Aluminium:" section contains text about the initial plan to use steel, the discovery that steel wasn't compatible, and the subsequent investigation leading to the use of 5005 H34 aluminum. It also includes a note about the school's available aluminum sheet stock. The "Enclosure Design:" section discusses the initial thought of cutting six pieces of aluminum, the realization that a more sophisticated approach was needed, and the adoption of a technique involving incorporating tabs on the edges. It also mentions a website tutorial that provided a potential solution. Below these sections are four screenshots of software interfaces, likely CAD or CAM tools, showing different stages of the design process.

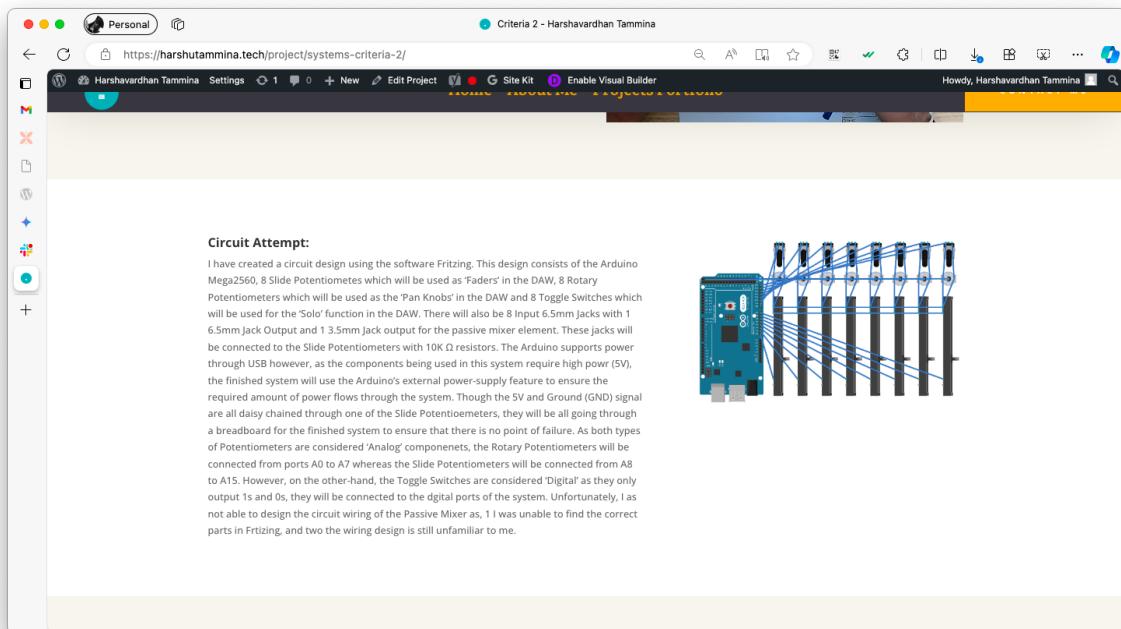
2024-07-13 19:23:42 - Project portfolio personal website cont'd

Researched and added research ideas in the website

The screenshot shows a web browser window with a sidebar on the left containing various icons. The main content area has a header "Criteria 2 - Harshavardhan Tammina". Below the header, there is a section titled "Research:". Under "Research:", there are two "Idea:" sections. The first "Idea 1:" describes a design for a Midi Controller using an Arduino, noting the short travel distance of the faders and the lack of toggle switches. It includes a photograph of a wooden prototype with several knobs and a small display screen. The second "Idea 2:" describes a design for a DAW Controller, mentioning the use of toggle switches instead of faders and comparing it to a general DAW design. It includes a photograph of a rectangular wooden prototype with multiple knobs and switches.

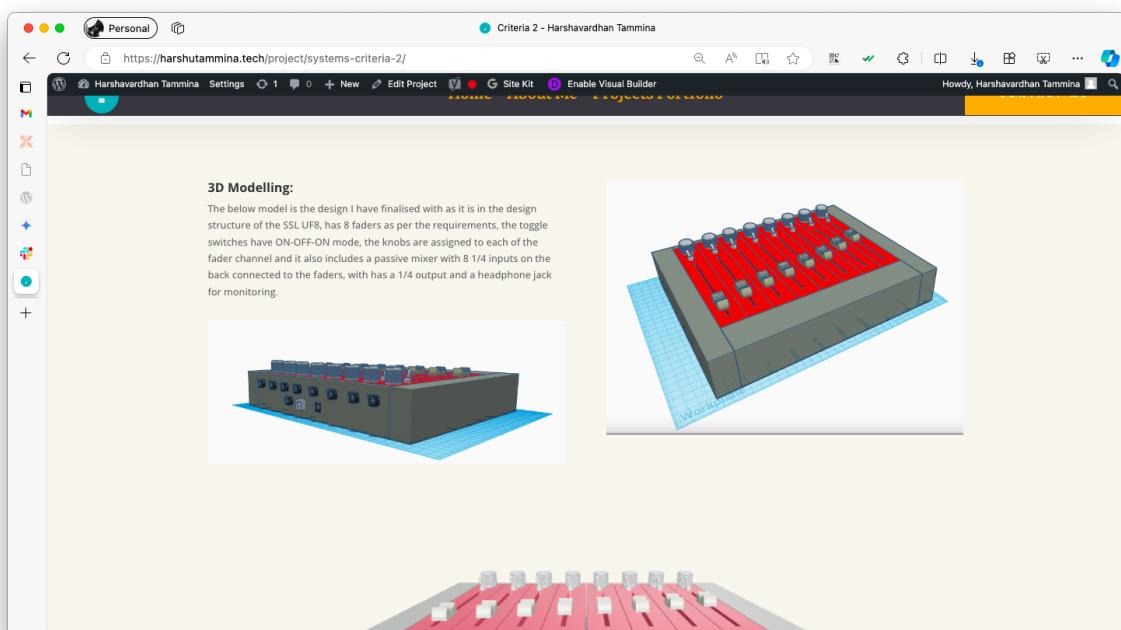
2024-07-13 20:54:05 - Project portfolio personal website cont'd

Updated the circuit design along with the associated text



2024-07-13 21:59:35 - Project portfolio personal website cont;d

Added the 3D modelled information, text, images along with a 3D viewer of the prototype



2024-07-13 22:59:48 - Project portfolio personal website

Writing up the special inspiration section along with images of the design process

The screenshot shows a web browser window with the URL <https://harshutammina.tech/project/systems-criteria-2/>. The page content includes:

- Special Inspiration Section:**

This project is building a system that is a DAW (Digital Audio Workstation) controller through MIDI, there have been many people who have inspired me to reach the position I am in today. I am currently the Front of House Engineer at Kelior Downs College, a Sound Engineer as a hobby providing Mixing & Mastering services and also an Audiophile! Without the support of others, I would have no clue about any of this technology (in terms of Audio), so therefore, I have decided to have an inspiration section on the bottom of the DAW Controller's Enclosure to 'Thank' and show that I care for them and what they have done for me with their name in the case I meet them one day, I can get it autographed as a memento! Some of these people are just artists who are celebrities, but as they inspire me I decided to include them in this section. I will be engraving their names using the CNC Router (with a 0.8mm depth) and painting the names with black paint to ensure the names are visible on the shiny colour of the Aluminium. I originally had planned to have pictures of these people engraved however, due to the complexity of engraving faces along with the CNC Router's capability, I have changed it to only the names of the people and a picture of my favourite artist – Anirudh Ravichander.
- Some of these people include:**
 - Shadab Rayeen – Brought me to the Sound Engineering World through the clip of him Mixing & Mastering the song 'La La Bheemla' from the film Bheemla Nayak
 - Sunny MR – Along with Shadab Rayeen, Sunny MR brought me to the world of Sound Engineering along with Studio Production
 - Aditya Modi – Brought me into the world of Live Monitoring
- Design Process**

Four screenshots of software interfaces showing the design process:

 - Autodesk Inventor interface showing a 3D model of a mixing console.
 - Autodesk Inventor interface showing a 3D model of a smartphone with a robot icon on the screen.
 - Autodesk Inventor interface showing a 3D model of a smartphone with a robot icon on the screen.
 - Autodesk Inventor interface showing a 3D model of a smartphone with a robot icon on the screen.

2024-07-17 22:39:21 - Personal website project portfolio

Adding the rest of the projects to the portfolio page

The screenshot shows a web browser window with the URL <https://harshutammina.tech/projects-portfolio/>. The page content includes:

My Project Portfolio

Systems Engineering Folio

This is my portfolio for Systems Engineering Unit 3 & 4 SAT, which is updated throughout the process of project which completes in Unit 4. There are 8 criterias involved in the SAT.

TaskMaster AI - VCE Unit 2

In Applied Computing Unit 2, I chose to prototype a to-do list which has OpenAI implemented as an API to allow AI suggestions and follow-ups for each task added.

