Synthesizer Project

Nov 4, 2024

Personal Project

Project manager	
Project dates	Oct 3, 2024 - Dec 14, 2024
Completion	52%
Tasks	68
Resources	0

Tasks

Name	Begin date	End date	Completion	Duration	Predecessors	Priority
Pre-Project	10/3/24	10/7/24	100	5		Normal
Group Formation	10/3/24	10/7/24	100	5		Normal
Collaboration Site Set-up	10/3/24	10/7/24	100	5		Normal
Begin Brainstorming Projects	10/3/24	10/7/24	100	5		Normal
Project Concept Generation	10/8/24	10/15/24	100	8		Normal
Generate 3 Project Ideas	10/8/24	10/9/24	100	2	53, 54, 55	Normal
Pick a Project	10/10/24	10/10/24	100	1	56	Normal
Define Synthesizer Features	10/11/24	10/15/24	100	5	57	Normal
Research Components and Features	10/11/24	10/15/24	100	5	57	Normal
Establish Project Must, Shoulds and Mays	10/11/24	10/15/24	100	5	57	Normal
Initial Design and Planning	10/16/24	10/25/24	100	10		Normal
Design Block Diagrams and Determine Input/Outputs	10/16/24	10/16/24	100	1	2, 3, 4	Normal
Identify Necessary Components	10/16/24	10/18/24	100	3	2, 3, 4	Normal
Being Planning out a Prototype	10/16/24	10/20/24	100	5	2, 3, 4	Normal
Begin designing project Schematic	10/16/24	10/20/24	100	5	2, 3, 4	Normal
Clean up Project Schematic	10/21/24	10/25/24	100	5	58	Normal
Create and Finalize a Product Design Specification	10/19/24	10/23/24	100	5	6, 7	Normal
Hardware Prototyping	10/14/24	10/30/24	100	17		Normal
Create Schematic for Class D Amplifier	10/16/24	10/20/24	100	5	4	Normal
Create Layout for Class D Amplifier	10/21/24	10/25/24	100	5	60	Normal
Order Class D Amp PCB	10/26/24	10/30/24	100	5	61	Normal
Begin ESP32 PWM and Library Derisking	10/21/24	10/25/24	100	5		Normal
Begin Component Derisking	10/14/24	10/18/24	100	5		Normal
Finalize Component Combinations and Values	10/19/24	10/21/24	100	3	11	Normal
Order Components	10/22/24	10/26/24	100	5	12	Normal
Wait For Components	10/27/24	10/29/24	100	3	74	Normal
Firmware Development for Core Synth Functions	10/26/24	11/7/24	77	13		Normal
Begin to develop code for PWM generation	10/26/24	10/30/24	100	5	10	Normal
Begin to develop code for OLED display	10/26/24	10/30/24	100	5	10	Normal

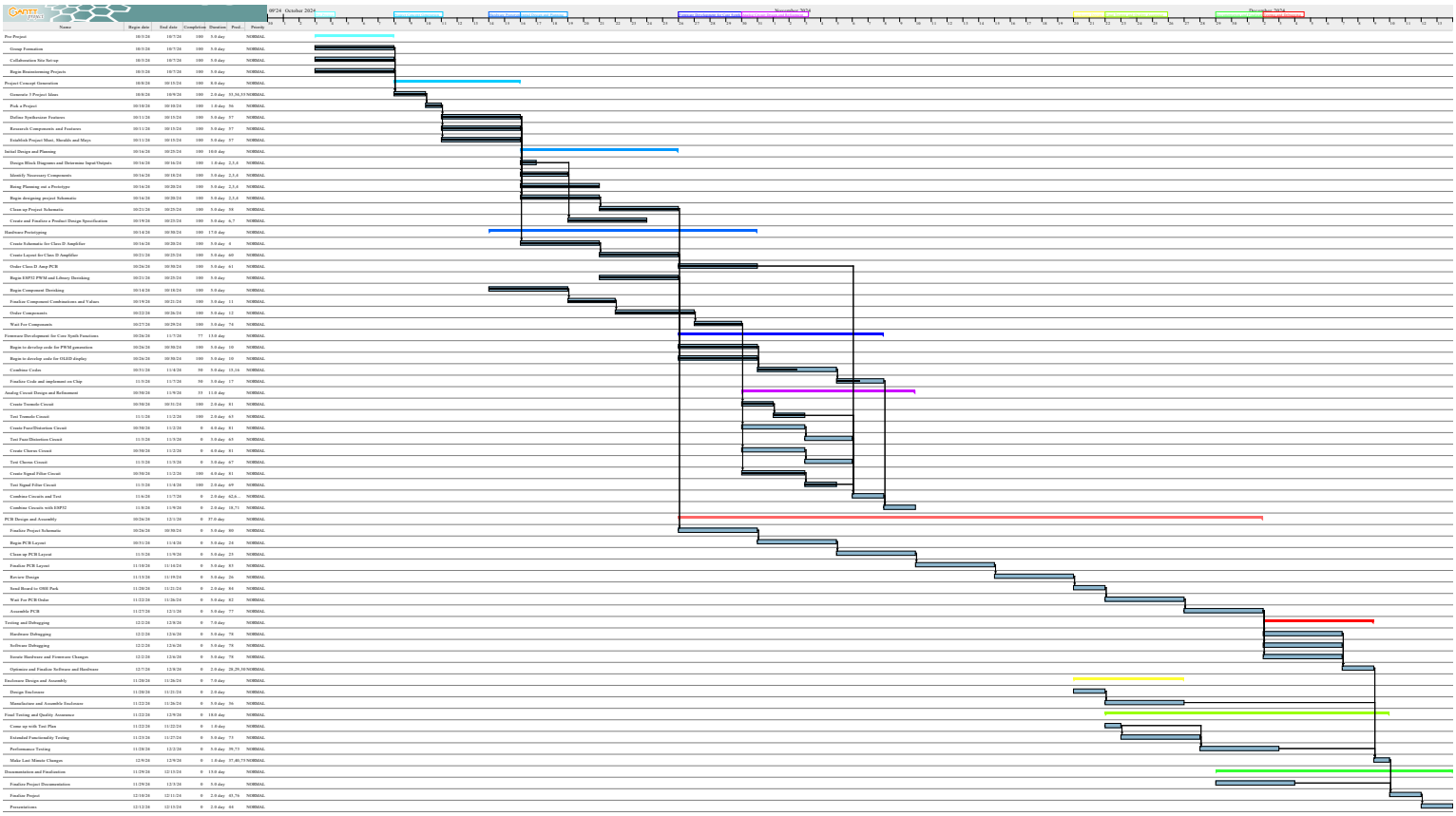
Tasks

Name	Begin date	End date	Completion	Duration	Predecessors	Priority
Combine Codes	10/31/24	11/4/24	50	5	15, 16	Normal
Finalize Code and implement on Chip	11/5/24	11/7/24	50	3	17	Normal
Analog Circuit Design and Refinement	10/30/24	11/9/24	35	11		Normal
Create Tremolo Circuit	10/30/24	10/31/24	100	2	81	Normal
Test Tremolo Circuit	11/1/24	11/2/24	100	2	63	Normal
Create Fuzz/Distortion Circuit	10/30/24	11/2/24	0	4	81	Normal
Test Fuzz/Distortion Circuit	11/3/24	11/5/24	0	3	65	Normal
Create Chorus Circuit	10/30/24	11/2/24	0	4	81	Normal
Test Chorus Circuit	11/3/24	11/5/24	0	3	67	Normal
Create Signal Filter Circuit	10/30/24	11/2/24	100	4	81	Normal
Test Signal Filter Circuit	11/3/24	11/4/24	100	2	69	Normal
Combine Circuits and Test	11/6/24	11/7/24	0	2	62, 64, 66, 68, 70	Normal
Combine Circuits with ESP32	11/8/24	11/9/24	0	2	18, 71	Normal
PCB Design and Assembly	10/26/24	12/1/24	0	37		Normal
Finalize Project Schematic	10/26/24	10/30/24	0	5	80	Normal
Begin PCB Layout	10/31/24	11/4/24	0	5	24	Normal
Clean up PCB Layout	11/5/24	11/9/24	0	5	25	Normal
Finalize PCB Layout	11/10/24	11/14/24	0	5	83	Normal
Review Design	11/15/24	11/19/24	0	5	26	Normal
Send Board to OSH Park	11/20/24	11/21/24	0	2	84	Normal
Wait For PCB Order	11/22/24	11/26/24	0	5	82	Normal
Assemble PCB	11/27/24	12/1/24	0	5	77	Normal
Testing and Debugging	12/2/24	12/8/24	0	7		Normal
Hardware Debugging	12/2/24	12/6/24	0	5	78	Normal
Software Debugging	12/2/24	12/6/24	0	5	78	Normal
Iterate Hardware and Firmware Changes	12/2/24	12/6/24	0	5	78	Normal
Optimize and Finalize Software and Hardware	12/7/24	12/8/24	0	2	28, 29, 30	Normal
Enclosure Design and Assembly	11/20/24	11/26/24	0	7		Normal
Design Enclosure	11/20/24	11/21/24	0	2		Normal

Tasks

Name	Begin date	End date	Completion	Duration	Predecessors	Priority
Manufacture and Assemble Enclosure	11/22/24	11/26/24	0	5	36	Normal
Final Testing and Quality Assurance	11/22/24	12/9/24	0	18		Normal
Come up with Test Plan	11/22/24	11/22/24	0	1		Normal
Extended Functionality Testing	11/23/24	11/27/24	0	5	73	Normal
Performance Testing	11/28/24	12/2/24	0	5	39, 73	Normal
Make Last Minute Changes	12/9/24	12/9/24	0	1	37, 40, 75	Normal
Documentation and Finalization	11/29/24	12/13/24	0	15		Normal
Finalize Project Documentation	11/29/24	12/3/24	0	5		Normal
Finalize Project	12/10/24	12/11/24	0	2	43, 76	Normal
Presentations	12/12/24	12/13/24	0	2	44	Normal

Gantt Chart



Name	Begin date	End date	Completed	Duration	Predecessors	Priority
Pre-Project	10/3/24	10/7/24	100	5.0 day		NORMAL
Group Formation	10/3/24	10/7/24	100	5.0 day		NORMAL
Collaboration Site Setup	10/3/24	10/7/24	100	5.0 day		NORMAL
Begin Brainstorming Projects	10/3/24	10/7/24	100	5.0 day		NORMAL
Project Concept Generation	10/8/24	10/15/24	100	8.0 day		NORMAL
Generate 3 Project Ideas	10/8/24	10/9/24	100	2.0 day	33,34,35	NORMAL
Pick a Project	10/10/24	10/10/24	100	1.0 day	36	NORMAL
Define Synthesizer Features	10/11/24	10/15/24	100	5.0 day	37	NORMAL
Research Components and Features	10/11/24	10/15/24	100	5.0 day	37	NORMAL
Establish Project Must, Shoulds and Mays	10/11/24	10/15/24	100	5.0 day	37	NORMAL
Initial Design and Planning	10/16/24	10/25/24	100	10.0 day		NORMAL
Design Block Diagrams and Determine Input/Outputs	10/16/24	10/16/24	100	1.0 day	2,3,4	NORMAL
Identify Necessary Components	10/16/24	10/18/24	100	3.0 day	2,3,4	NORMAL
Breag Planning out a Prototype	10/16/24	10/20/24	100	5.0 day	2,3,4	NORMAL
Begin designing project Schematic	10/16/24	10/20/24	100	5.0 day	2,3,4	NORMAL
Clean up Project Schematic	10/21/24	10/25/24	100	5.0 day	50	NORMAL
Create and Finalize a Product Design Specification	10/19/24	10/25/24	100	5.0 day	6,7	NORMAL
Hardware Prototyping	10/14/24	10/30/24	100	17.0 day		NORMAL
Create Schematic for Class D Amplifier	10/16/24	10/20/24	100	5.0 day	4	NORMAL
Create Layout for Class D Amplifier	10/21/24	10/25/24	100	5.0 day	60	NORMAL
Order Class D Amp PCB	10/26/24	10/30/24	100	5.0 day	61	NORMAL
Begin ESP32 PWM and Library Derisking	10/21/24	10/25/24	100	5.0 day		NORMAL
Begin Component Derisking	10/14/24	10/18/24	100	5.0 day		NORMAL
Finalize Component Combinations and Values	10/19/24	10/21/24	100	3.0 day	11	NORMAL
Order Components	10/22/24	10/26/24	100	5.0 day	12	NORMAL
Wait For Components	10/27/24	10/29/24	100	3.0 day	74	NORMAL
Frontend Development for Core Synth Functions	10/26/24	11/7/24	77	13.0 day		NORMAL
Begin to develop code for PWM generation	10/26/24	10/30/24	100	5.0 day	10	NORMAL
Begin to develop code for OLED display	10/26/24	10/30/24	100	5.0 day	10	NORMAL
Combine Codes	10/31/24	11/4/24	50	5.0 day	15,16	NORMAL
Finalize Code and implement on Chip	11/5/24	11/7/24	50	3.0 day	17	NORMAL
Analog Circuit Design and Refinement	10/30/24	11/9/24	33	11.0 day		NORMAL
Create Tremolo Circuit	10/30/24	10/31/24	100	2.0 day	81	NORMAL
Test Tremolo Circuit	11/1/24	11/2/24	100	2.0 day	83	NORMAL
Create Fuzz/Distortion Circuit	10/30/24	11/2/24	0	4.0 day	81	NORMAL
Test Fuzz/Distortion Circuit	11/3/24	11/9/24	0	5.0 day	85	NORMAL
Create Chorus Circuit	10/30/24	11/2/24	0	4.0 day	81	NORMAL
Test Chorus Circuit	11/3/24	11/9/24	0	5.0 day	87	NORMAL
Create Signal Filter Circuit	10/30/24	11/2/24	100	4.0 day	81	NORMAL
Test Signal Filter Circuit	11/3/24	11/4/24	100	2.0 day	89	NORMAL
Combine Circuits and Test	11/6/24	11/7/24	0	2.0 day	62,8...	NORMAL
Combine Circuits with ESP32	11/8/24	11/9/24	0	2.0 day	18,71	NORMAL
PCB Design and Assembly	10/26/24	12/1/24	0	37.0 day		NORMAL
Finalize Project Schematic	10/26/24	10/30/24	0	5.0 day	80	NORMAL
Begin PCB Layout	10/31/24	11/4/24	0	5.0 day	24	NORMAL
Clean up PCB Layout	11/5/24	11/9/24	0	5.0 day	25	NORMAL
Finalize PCB Layout	11/10/24	11/14/24	0	5.0 day	83	NORMAL
Review Design	11/15/24	11/19/24	0	5.0 day	26	NORMAL
Send Board to OSH Park	11/20/24	11/21/24	0	2.0 day	84	NORMAL
Wait For PCB Order	11/22/24	11/26/24	0	5.0 day	82	NORMAL
Assemble PCB	11/27/24	12/1/24	0	5.0 day	77	NORMAL
Testing and Debugging	12/2/24	12/9/24	0	7.0 day		NORMAL
Hardware Debugging	12/2/24	12/6/24	0	5.0 day	78	NORMAL
Software Debugging	12/2/24	12/6/24	0	5.0 day	78	NORMAL
Iterate Hardware and Firmware Changes	12/2/24	12/6/24	0	5.0 day	78	NORMAL
Optimize and Finalize Software and Hardware	12/7/24	12/9/24	0	2.0 day	28,29,30	NORMAL
Enclosure Design and Assembly	11/20/24	11/26/24	0	7.0 day		NORMAL
Design Enclosure	11/20/24	11/21/24	0	2.0 day		NORMAL
Manufacture and Assemble Enclosure	11/22/24	11/26/24	0	5.0 day	86	NORMAL
Final Testing and Quality Assurance	11/22/24	12/9/24	0	18.0 day		NORMAL
Come up with Test Plan	11/22/24	11/22/24	0	1.0 day		NORMAL
Extended Functionality Testing	11/23/24	11/27/24	0	5.0 day	73	NORMAL
Performance Testing	11/28/24	12/2/24	0	5.0 day	59,73	NORMAL
Make Last Minute Changes	12/9/24	12/9/24	0	1.0 day	57,40,73	NORMAL
Documentation and Finalization	11/29/24	12/13/24	0	13.0 day		NORMAL
Finalize Project Documentation	11/29/24	12/3/24	0	5.0 day		NORMAL
Finalize Project	12/10/24	12/11/24	0	2.0 day	43,76	NORMAL
Presentations	12/12/24	12/13/24	0	2.0 day	44	NORMAL

Resources Chart