AI Art Picture Frame

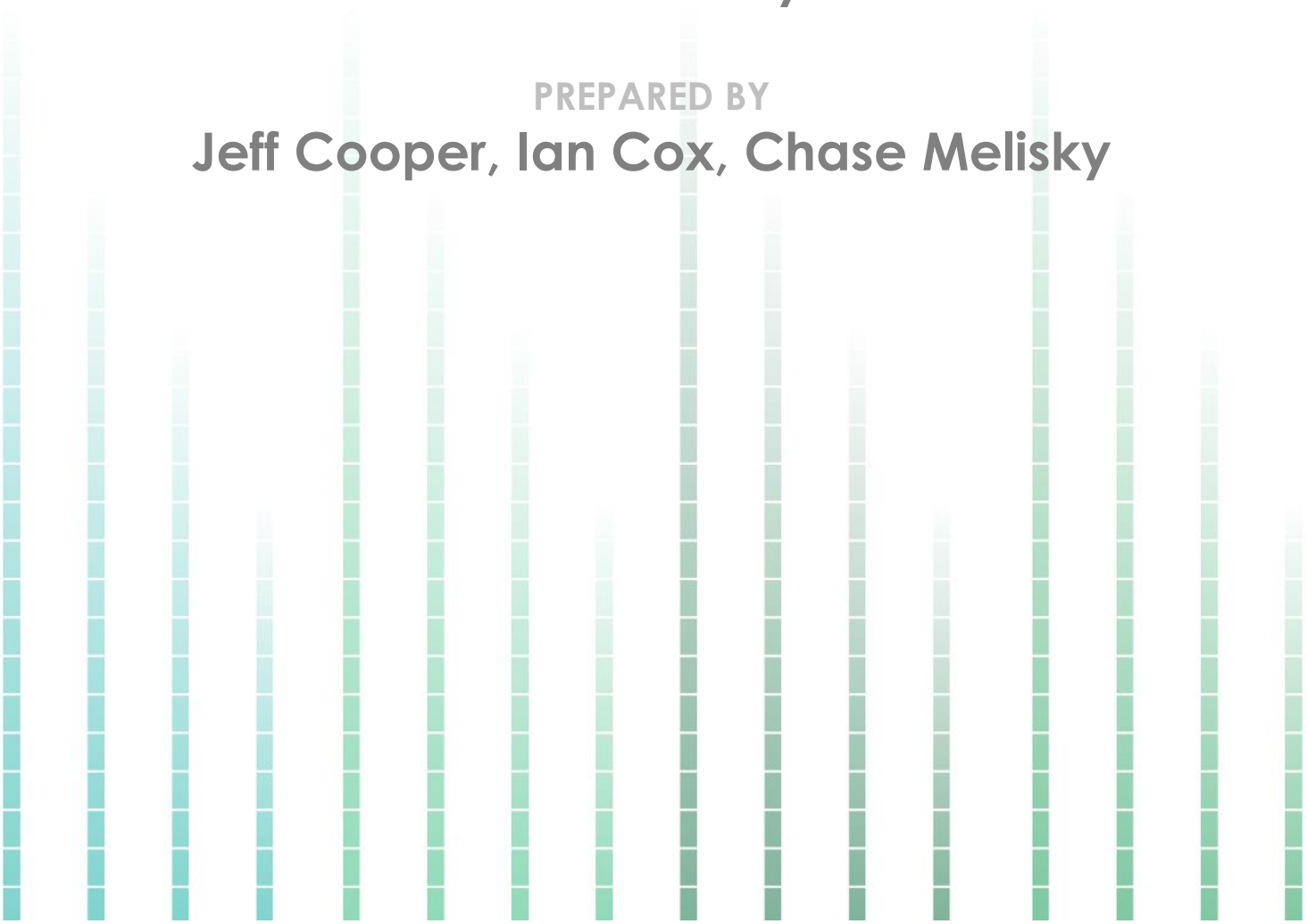
NEURAL CANVAS

PREPARED FOR

James Eddy

PREPARED BY

Jeff Cooper, Ian Cox, Chase Melisky



PROJECT TITLE	Neural Canvas, an AI Art Picture Frame		
SUBMITTED BY	Jeff Cooper, Ian Cox, Chase Melisky	**PROJECT TYPE**	Art and Technology
CLASS	CS2210: Computer Organization	**GROUP #**	24
DATE OF PROPOSAL	Oct 13	**TOTAL ESTIMATED BUDGET**	$2154.98
START DATE	Sept 15	**PROJECTED COMPLETION DATE**	Nov 27

I. INTRODUCTION

DESCRIPTION

In this project, we will create an interactive picture frame using a Raspberry Pi and the cutting-edge DALL-E 2 AI model. The primary objective of this project is to combine the power of artificial intelligence with the practicality of a picture frame to provide a unique and engaging user experience. Using DALL-E 2, a model developed by OpenAI, we can generate images based on textual descriptions. This system will allow users to verbally request a different image, transforming their ordinary picture frame into a dynamic and personalized piece of art.

OVERVIEW

The project will involve several key components, starting with the integration of a Raspberry Pi, and DALL-E 2's API for image generation. We will connect a microphone to the Raspberry Pi, enabling users to communicate their image requests by voice. The Raspberry Pi will process these voice commands, relay them to the DALL-E 2 API, and receive the generated images in response. The AI-generated images will be displayed on a connected screen, mimicking a traditional picture frame.

PLATFORM

Raspberry PI 4

DEFINITIONS, ABBREVIATIONS, ACRONYMS

AI: Artificial Intelligence
The intelligence of machines or software, as opposed to the intelligence of humans or animals

API: Application Programming Interface
A set of functions and procedures allowing the creation of applications that access the features or data of an operating system, application, or other service

DALL-E 2
A generative AI technology that enables users to create new images with text to graphics prompts

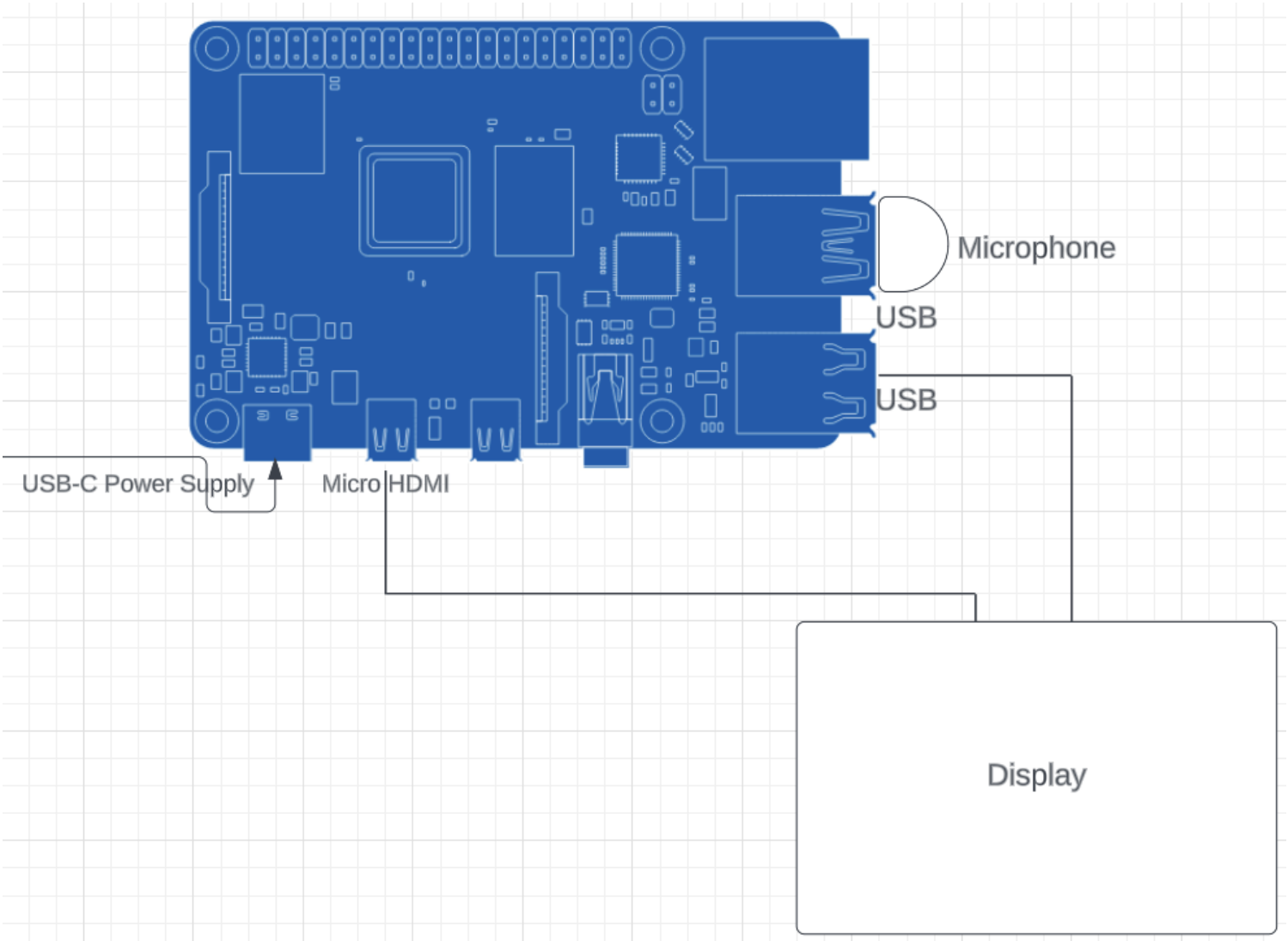
OpenAI
An American artificial intelligence research laboratory

II. PROJECT DETAIL

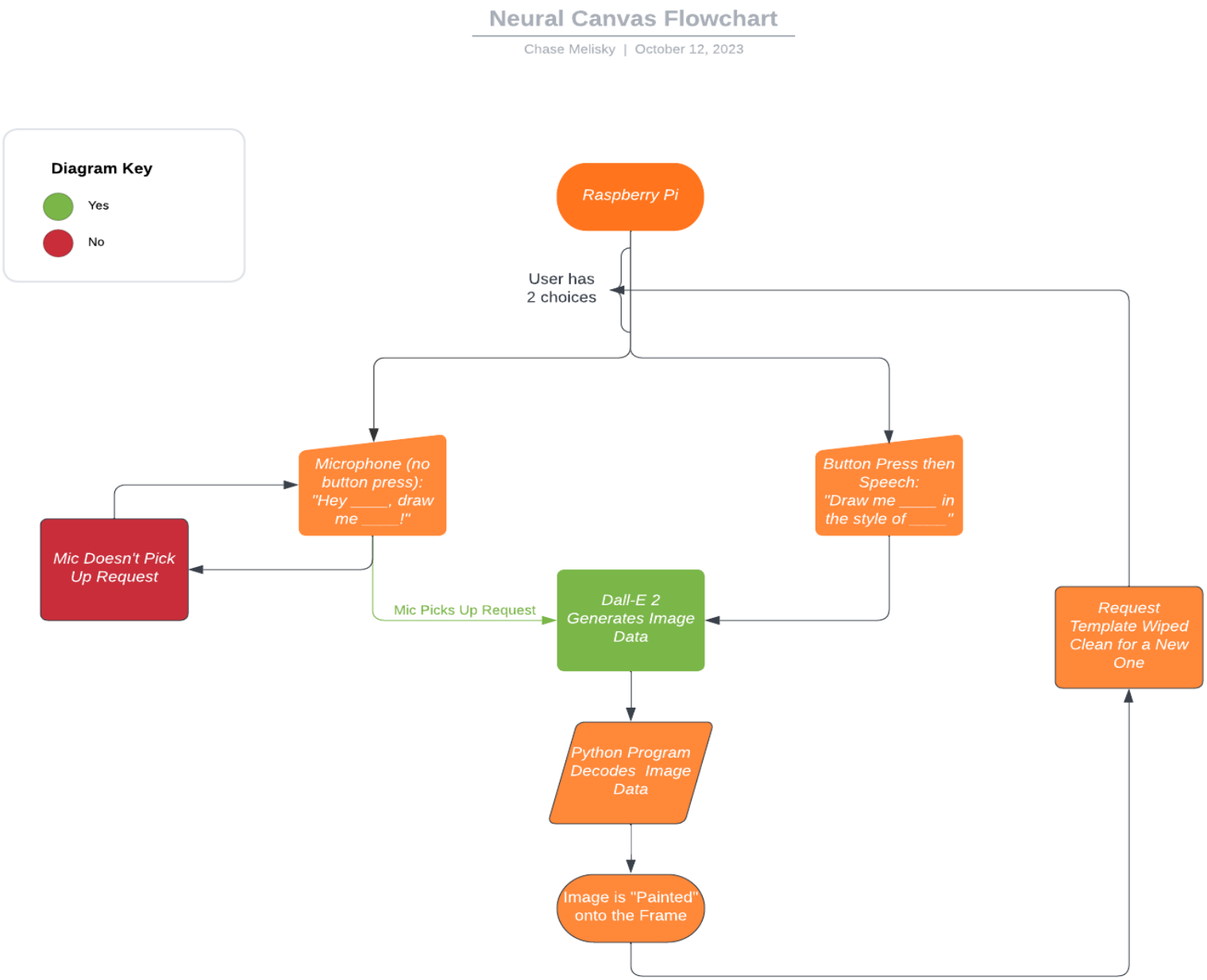
DESCRIPTION

This project aims to create an interactive AI-powered picture frame using a Raspberry Pi and DALL-E 2. The Raspberry Pi serves as the project's computational core, responsible for voice recognition and image display. The integration of DALL-E 2's API enables the generation of AI-driven artwork. Users will be able to verbally request images and our system will respond with a relevant, AI-generated piece of artwork. This project transforms a traditional picture frame into a dynamic work of art. It offers an exciting glimpse into the future of human-AI interaction and creative technology integration.

DIAGRAM



FLOWCHART



TECHNICAL WRITEUP

The technical implementation of our project begins with the Raspberry Pi which will run a Python-based script to manage voice recognition and interaction with the DALL-E 2 API. We will use an existing speech recognition package to convert user voice commands into text. The text will be relayed through the DALL-E 2 API for image generation. The AI-generated images will be received in a base64 format, decoded, and displayed on the connected screen.

III. BUDGET	USD
Raspberry Pi 4	140.00
7 Inch HDMI Monitor	39.99
Microphone	7.99
Cost per Image Generation	.02 per image ~ 5.00
Picture Frame	~ 10.00
Labor Costs	*$1952.00*
	Budget w/o Labor ~ $202.98 *Total Budget ~ $2154.98*

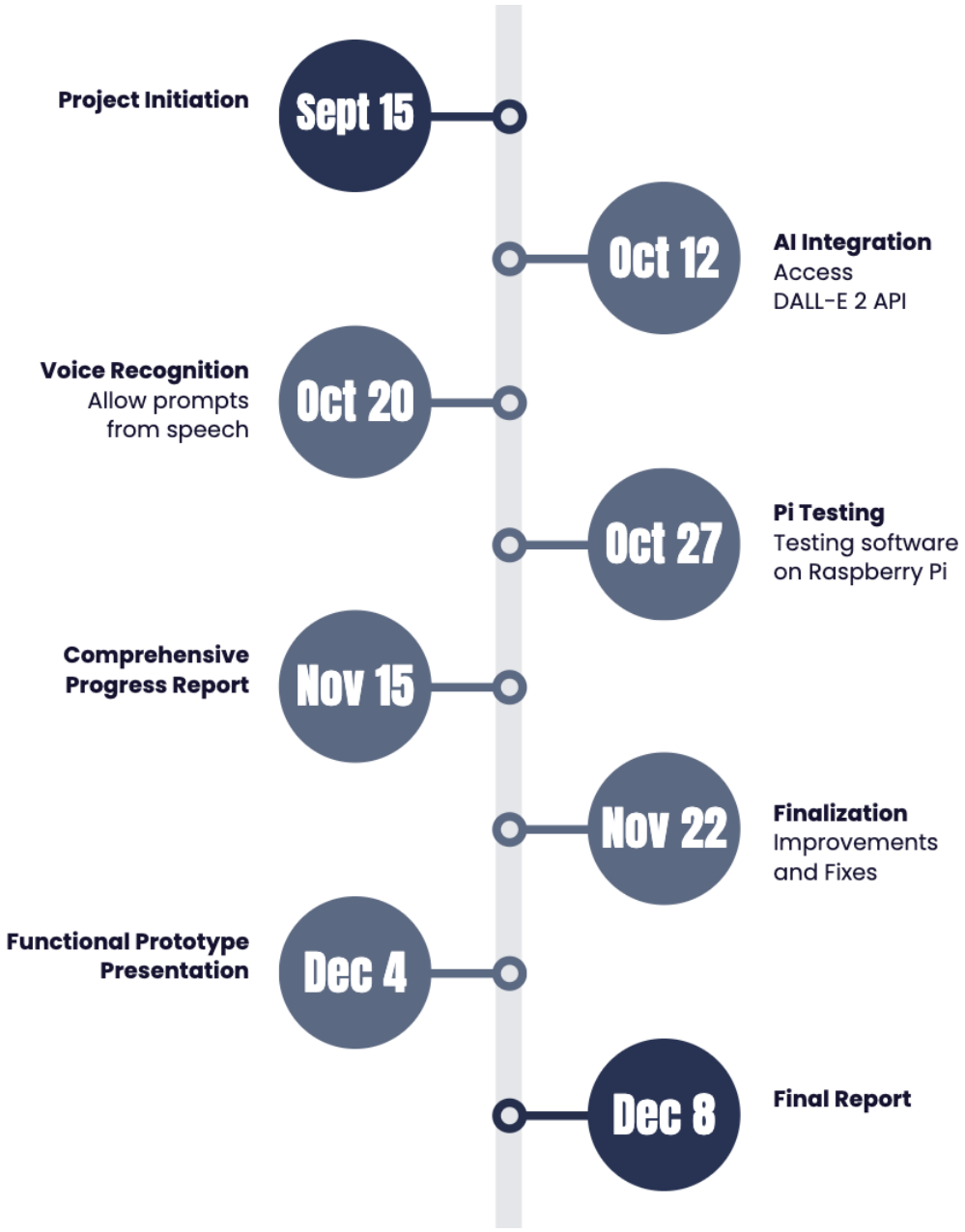
HARDWARE
 HAMTYSAN Raspberry Pi Screen 7 Inch HDMI Monitor 800x480 LCD Screen Display Mini Small Monitor for Raspberry Pi 4 via Amazon  SunFounder USB 2.0 Mini Microphone for Raspberry Pi 4 via Amazon

IV. PROJECT PLAN

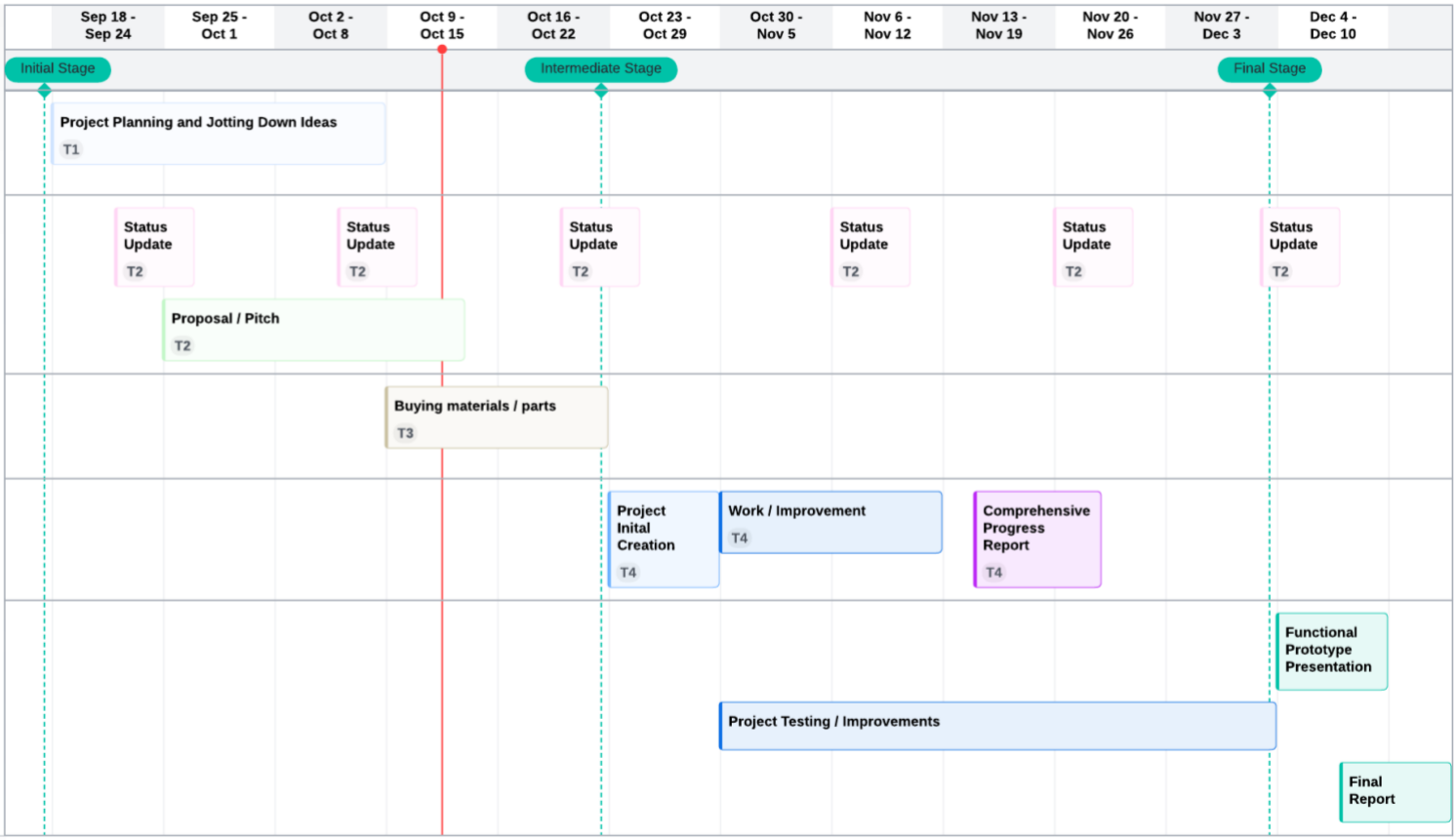
ROLES

Project Manager **40 hrs @ $20/hr**
Responsibilities: Project coordination and management
Team Member: *Jeff Cooper*
Software Engineer **32 hrs @ $18/hr**
Responsibilities: API & speech recognition integration
Team Member: *Chase Melisky*
Hardware Engineer **32 hrs @ $18/hr**
Responsibilities: Raspberry Pi and component configuration
Team Member: *Ian Cox*

TIMELINE



GANTT CHART



V. TARGET MARKETS	
Art Enthusiasts	Those with an appreciation for art and creating art.
Tech Enthusiasts	Those passionate about artificial intelligence
Home Decor	May be viewed as a unique home decor item
Galleries	Could be used in dynamic exhibit displays

VI. REFERENCES	
SOURCE	**PURPOSE**
Neural Canvas - AI Comic Generator. (2023). Neural Canvas - AI Comic Generator. https://neuralcanvas.io/	PROJECT INSPIRATION
AI ART FRAME. (2023). HighIntensityLabs. https://highintensitylabs.com/products/ai-art-frame	PROJECT INSPIRATION

VII. NEXT STEPS	
Project Expansion	This project can be pushed much further with more integrations, user interactions, etc. Machine learning is a possible integration that would make for a more personalized user experience. Could extend the project to work with other smart devices in a home as well.
Other Applications	This project presents the capabilities of DALL-E 2 proving that the possibilities are endless. The technology presented in this project can be used in many different industries. Education, healthcare, and retail are just some examples of where this technology could be implemented. In education, AI art generation can be used as a visual aid in learning environments. This technology can also be used as some type of patient engagement in healthcare centers. Lastly,