**Planning Report**

**Date:** 30 September 2024

**Project Goal**

The primary goal of this project is to develop an AI model capable of generating Lego facades. This will be achieved by training the AI on a dataset of Lego models and leveraging pattern recognition to create new designs.

**Significance of the Project**

**What:** This project aims to automate the design process of Lego facades using AI.

**Who:** The project will benefit Lego enthusiasts, designers, and potentially the Lego company itself.

**Why:** The significance of this project lies in its potential to streamline the creative process, reduce design time, and inspire new and innovative Lego constructions.

**Problem Statement**

The main problem this project addresses is the time-consuming and complex nature of designing Lego facades manually. This issue affects Lego designers and enthusiasts who spend considerable time creating and refining their models, which can limit creativity and productivity.

**Proposed Solutions (Deliverables)**

1. **Tool Familiarization:** Gain proficiency with Lego Studio and Ldraw files.
2. **Dataset Creation:** Build and compile a dataset of Lego models, focusing on common elements like windows and doors.
3. **AI Training:** Train the AI model using the compiled dataset to recognize and generate Lego patterns.
4. **Model Evaluation:** Assess the AI-generated designs for accuracy and creativity.
5. **Further Development:** Enhance the AI model based on feedback and explore additional features or applications.

**Proposed Timelines**

* **Phase 1:** 1 September 2024 to 30 September 2024 - Learn tools and build initial Lego usable dataset using Lego Studio.
* **Phase 2:** 1 October 2024 to 31 October 2024 – Covert Ldraw data into 3 dimensional matrix (tensor) through building algorithms.
* **Phase 3:** 1 December 2024 to 30 December 2025 - Train the AI model.
* **Phase 4:** 1 January 2025 to 28 January 2025 - Evaluate and refine AI-generated designs.
* **Phase 5:** 1 February 2025 onwards - Further development and exploration of additional features.