# Project Proposal: Frapp – AI-Powered Figma to React Code Generator

**1. Overview**

Frapp is an intelligent developer tool that converts Figma designs into modular, production-ready React code using Generative AI. Unlike traditional design-to-code platforms that require manual tweaking or intermediate exports, Frapp is a fully automated pipeline from design to live preview with minimal user input.

This document emphasizes **features and functionality**, cutting through generalized commentary to highlight the concrete innovations and benefits offered by Frapp.

**2. Core Functionalities**

**Figma Link Input**

* Accepts a Figma file URL
* Extracts file key and node information using Figma API

**AI-Powered Code Generation**

* Utilizes GPT-4o or Gemini Pro to convert parsed design data into React code
* Code is readable, modular, and follows component-based architecture
* Supports regeneration using alternate libraries (MUI, Chakra UI)

**Code Display & Output**

* Code preview using react-live or iframe
* One-click copy to clipboard
* Export as .zip or GitHub repo
* Toggle between Web and React Native code

**Design-Aware Features**

* Editable design tree UI: click any element to see corresponding code
* Dark/light mode preview toggle
* Viewport toggle for mobile/web preview

**AI-Based Utilities**

* "Explain Code" button uses GenAI to describe what each component does
* Theme Generator: converts design/code to different UI themes (e.g., Retro, Glassmorphism)
* "Refactor Code" to switch UI libraries

**3. Stack & Architecture**

* **Frontend**: React, Tailwind CSS, vite-plugin-pwa
* **Backend**: Node.js, Express
* **APIs**: Figma API, Gemini or OpenAI GPT
* **Live Preview**: react-live, CodeMirror, iframe
* **Export**: GitHub OAuth, StackBlitz, CodeSandbox
* **Mobile Compatibility**: Built as a responsive PWA

**4. Execution Feasibility**

* Entire flow can be completed using existing APIs and open-source libraries
* Designed for hackathon timelines with incremental milestones:
  + Phase 1: Figma input → React DOM Code
  + Phase 2: Preview, Export, Refactor, AI Explanation
  + Phase 3 (optional): React Native export

**5. Impact & Scalability**

* High impact for solo devs, frontend teams, and startups
* Can scale to support design systems, design platforms (e.g., Sketch, Adobe XD)
* Potential SaaS product or open-source dev tool
* Aligns with rise of no-code/low-code and GenAI automation tools

**6. Minimum Lovable Product (MLP)**

* Input: Figma file link
* Output: AI-generated React code with live preview
* Bonus: Code export + dark mode + AI explanation

This tight feedback loop between design and deploy is what sets Frapp apart — saving hours of dev time, eliminating human error, and making beautiful UIs instantly usable.