Part A: Project Proposal

The project is an on-chain, automated subscription payment solution using blockchain. It allows businesses to create and manage recurring payment plans (e.g., monthly subscriptions) entirely within the decentralized ecosystem. Crucially, it will utilise the native SPL Token delegation mechanism, enabling the service's Program Derived Address (PDA) to automatically deduct tokens from a user's wallet on a set schedule without continuous user interaction or active signatures.

1) Core Value Proposition & Product-Market Fit (PMF)

The core value proposition lies in offering a decentralized, automated, and trustless recurring revenue stream for Web3 applications and services, eliminating reliance on centralized payment processors like Stripe. This system provides a superior developer experience on Solana by handling the complex delegation logic on-chain.
Product-Market Fit (PMF) exists among dApps seeking to monetize consistently without dealing with sensitive user credit card data, reducing operational costs, and providing censorship-resistant billing that is natively integrated with crypto wallets.

2) Key Target Markets

1. **Web3 Gaming Platforms:** Selling monthly battle passes, premium features, or perpetual in-game subscriptions using in-game utility tokens or stablecoins.
2. **NFT Membership Clubs/DAOs:** Managing automatic monthly dues for holders of governance or access NFTs, ensuring membership remains active.
3. **Decentralized Data & API Services:** Charging developers a recurring fee for access to premium, high-throughput APIs or data streams built on Solana.
4. **Creator Economy/Content Subscriptions:** Allowing independent creators to charge a monthly fee for premium content access, directly paid in crypto.

3) Competitor Landscape

1. **Stripe Billing (Traditional/Fiat)**
    - **Weakness:** Centralized, requires KYC/KYB, high fees, fiat-only, high friction for global crypto-native users. (AI Missed - Traditional Focus)
2. **Superfluid / Sablier (Web3/Streaming, EVM)**
    - **Weakness:** Operates on EVM chains (Ethereum, Polygon, etc.), which are slower and more expensive than Solana. Their model is "streaming" (per-second payment), not periodic deduction, offering a different value proposition. (AI Identified)
3. **Helio / Payment Processors (Solana Payment Gateways)**
    - **Weakness:** Primarily focused on one-time payments, payment links, and invoices. They do not natively offer the secure, autonomous, recurring delegation/deduction model required here. (Manual Research/Gap Analysis)

4. **Patreon / Substack (Traditional/Creator)**

   Weakness: Highly centralized platform risk, high platform fees, and reliance on fiat payment rails. (AI Missed - Traditional Focus)

4) Founder-Market Fit (FMF)

Background: My founder-market fit for this project is uniquely strong, rooted in a four-year history of designing and scaling robust backend systems in Web2 (Express, Node.js, Java) combined with a deep, recent dedication to Solana's architecture. My experience as a full-stack developer (React, Next.js, Hono.js) ensures that I not only possess the Anchor and Rust expertise required to build the secure, low-latency on-chain subscription program but also the proficiency to develop the critical off-chain automation service (cron job) and user-facing dApp interface. This dual skill set—Backend Architect and Solana Protocol Developer—is essential for a subscription service that demands both secure on-chain logic (PDAs, SPL Delegation) and reliable, scalable automation, validating my ability to deliver a complex, end-to-end decentralized financial primitive.

Part B: Process Appendix

Initial Idea:

- I am planning to build an automated payment subscription service similar to what google play gives (create a subscription, user can subscribe to a subscription and the payment gets automatically deducted from wallet) on solana using anchor, the automatic deduction part can be done using delegated accounts as per my research.

Ideas changes:

- The project is an on-chain, automated subscription payment solution built on Solana using Anchor. It allows businesses to define and manage recurring payment plans (e.g., monthly access fees) entirely within the decentralized ecosystem. Crucially, it utilizes the native SPL Token delegation mechanism, enabling the service's Program Derived Address (PDA) to automatically deduct tokens from a user's wallet on a set schedule without continuous user interaction or active signatures.

AI Prompts and Outputs:

All AI Prompts and Outputs are available here:
https://g.co/gemini/share/d64fcb107030

Research Notes:

- Using Clockwork for automated deduction on events and CRON Jobs
- SPL Token Delegation (How it works?, example code)
- Anchor-Lang CPI (for delegation and deduction)

Analysis & Refinements:

- Earlier I thought to use a PDA to control and deduct subscriptions and add it to the creator PDA which can be withdrawn, But after some research Token delegation to the program would be a better option (user and program both have the authority to the address)
- There would have been an offchain service which would cut the amount from delegated token accounts using CRON or events. But Clockwork would be best (as i know its for automation) at this.