

1. Overview

- **Product Name:** Bobabble
 - **Product Type:** AI-powered mobile app + IoT vending machine network
 - **Purpose:** Enable users to pre-order customized bubble tea and pick it up via QR code from smart vending machines.
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2. Problem Statement

Users face limited access to boba drinks in cities and campuses due to: - Few shops nearby

- Long wait times
 - Inconsistent hours
 - Lack of automation or on-the-go options
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3. Solution Summary

Bobabble offers: - A mobile app for custom orders

- QR code-based pickup at vending machines
 - Smart map to locate nearest machines
 - Real-time machine availability
 - Personalized drink suggestions via AI
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4. Key Features

a. Mobile App Features

- User account creation/login
- Drink customization (flavor, sugar, ice, toppings)
- Save favorite orders
- Real-time map of nearby vending machines
- QR code generation for pickup
- Order history and rewards

b. Vending Machine Features

- QR code scanner for order verification
- Drink preparation and dispensing system
- Self-cleaning system
- Touchscreen interface for walk-up users
- Internet connection for syncing with app

- Compact, modular design for deployment
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5. User Flow

1. User opens app
 2. Customizes and places an order
 3. Receives a QR code
 4. Finds the nearest machine
 5. Scans code → drink is dispensed
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6. System Requirements

a. App (iOS & Android)

- Frontend: React Native or Flutter
- Backend: Node.js + Firebase or AWS
- Payment integration: Stripe/Apple Pay/Google Pay
- AI: Recommendation engine for drink personalization

b. Vending Machine

- Embedded system with touchscreen UI
 - Wi-Fi/Cellular connectivity
 - QR code scanner hardware
 - Refrigerated and heated compartments
 - Ingredient canisters and pump controls
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7. Milestones / Roadmap

- MVP App & Machine Prototype – Q4 2025
 - Pilot Launch (2–3 campuses) – Q1 2026
 - App V2 with loyalty & referral – Q2 2026
 - Regional Expansion – Q3–Q4 2026
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8. Future Upgrades

- Smart ingredient restock alerts
- User drink-sharing and community features
- Hot drink support
- Sustainability add-ons (compostable cups, local sourcing)
- AI chat assistant inside the app