Zyra

Good habits come to life

Project Proposal

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Contents

Zyra is a playful, habit-building app designed for children ages **5–10**, transforming everyday routines into exciting adventures. Through **gamified challenges**, kids earn **"footsteps"** by completing real-world tasks — like brushing their teeth, feeding a pet, or finishing homework — which bring them closer to **unlocking virtual companions** such as dinosaurs, flowers, or birds.

Each task is grouped into engaging categories like **hygiene, general, pet care, and study**, helping children connect fun with responsibility. Zyra encourages **hands-on learning** and **positive daily habits** without adding unnecessary screen time — children interact briefly with the app to mark the task done, celebrate achievements, or explore their unlocked AR companions.

With a blend of **gamification, augmented reality (AR), and AI**, Zyra nurtures curiosity, independence, and a sense of accomplishment. Parents can keep track of the progress of their child and assign tasks to them. Zyra promotes a balanced digital experience — one that motivates children to learn, explore, and build lasting healthy habits in a fun and imaginative way.

2.0 Market Analysis

Zyra is a viable project because there is a growing demand for child-focused habit-building tools. Many parents struggle to motivate children to complete daily routines such as hygiene, study, and chores, and want a way to track progress without constant reminders.

Zyra solves this by allowing children to complete tasks and move ahead in stages, rewarding them with educational AR objects like dinosaurs. This keeps the experience motivating without turning it into a game, while teaching responsibility and reinforcing routines.

Technology plays a key role: **photo-based task verification** ensures parents know the task was completed, while **AR rewards** make achievements fun and educational. **Cloud sync across devices** ensures families can track progress in real-time on both iOS and Android devices, and AI-generated fun facts add a learning layer to the rewards. This approach addresses multiple problems: motivating children, giving parents oversight, and adding educational value to routine tasks.

There is a strong demand for tools that help children build healthy habits. The global habit-tracking app market is projected to reach **USD 38.36 billion by 2033** (Business Research Insights), and gamification in education is expected to grow to **USD 18.63 billion by 2033** (Market Data Forecast). Zyra meets this demand by letting children complete tasks and unlock educational AR rewards, helping parents track progress while making habit-building engaging and effective.

3.0 Main Features

1. Feature A: Task Management & Gamification

Zyra turns daily routines into an engaging game. Children complete tasks such as hygiene, homework, or chores by submitting picture proof through the camera, while push notifications remind them of pending tasks. Each completed task earns stars and footsteps that move them closer to unlocking weekly rewards like dinosaurs. Parents can approve or reject submissions, ensuring accountability. This feature is important because it solves the problem of unmotivated children and uninformed parents, creating a system where kids feel excited to progress and parents gain peace of mind.
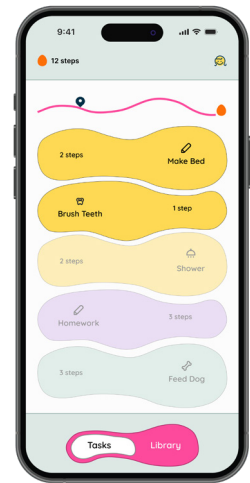
2. Feature B: AR Dinosaur Library with Fun Facts

As children complete tasks, they unlock dinosaurs that can be viewed in 3D through AR. Using ARKit/ARCore, kids can place dinosaurs in their environment and interact with them to reveal AI-generated fun facts, making rewards both playful and educational. This solves the issue of traditional rewards losing impact over time by offering a dynamic and interactive system. Children enjoy discovering and learning through their collection, while parents see that the rewards go beyond entertainment by fostering curiosity and knowledge.
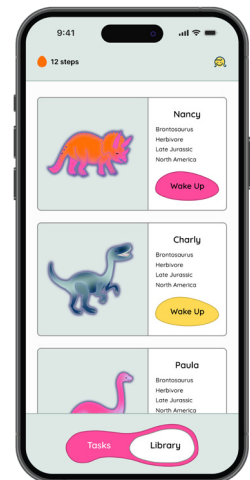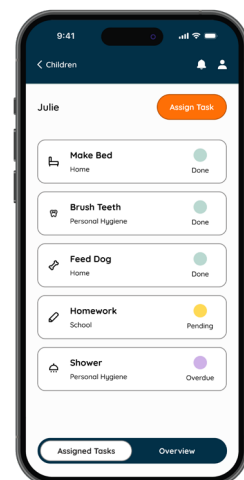
3. Feature C: Parent Dashboard & Notifications

The parent dashboard gives families clear visibility into progress. Parents receive instant push notifications when tasks are submitted, and the dashboard shows stars earned, footsteps collected, and objects such as dinosaurs unlocked. By allowing photo approval, the feature ensures children's tasks are genuinely completed. This solves the problem of
parents not knowing whether routines are followed, while giving children recognition when approved. It is relevant because it creates accountability, strengthens trust, and keeps both parents and children motivated in the habit-building process.

4. Auto fill Task generation with AI

The app includes an AI-powered Auto-Fill Task Generator that creates tasks **based on whatever prompt the parent provides**. Parents can type something simple like "morning routine," "study habits," or "responsibility tasks," and the AI will automatically generate a set of age-appropriate, personalized tasks. This makes task creation fast, flexible, and tailored to each child's needs, while reducing the mental load on parents.

4.0 Competitors

Zyra

Gamification	✓ Stars → footsteps → AR
Parent Approval with photo	✓ Optional
Family Involvement	✓ Parents dashboards + Child app
AR / Visual Rewards	✓ Full AR collectibles
Educational Content	✓ AI - generated fun facts
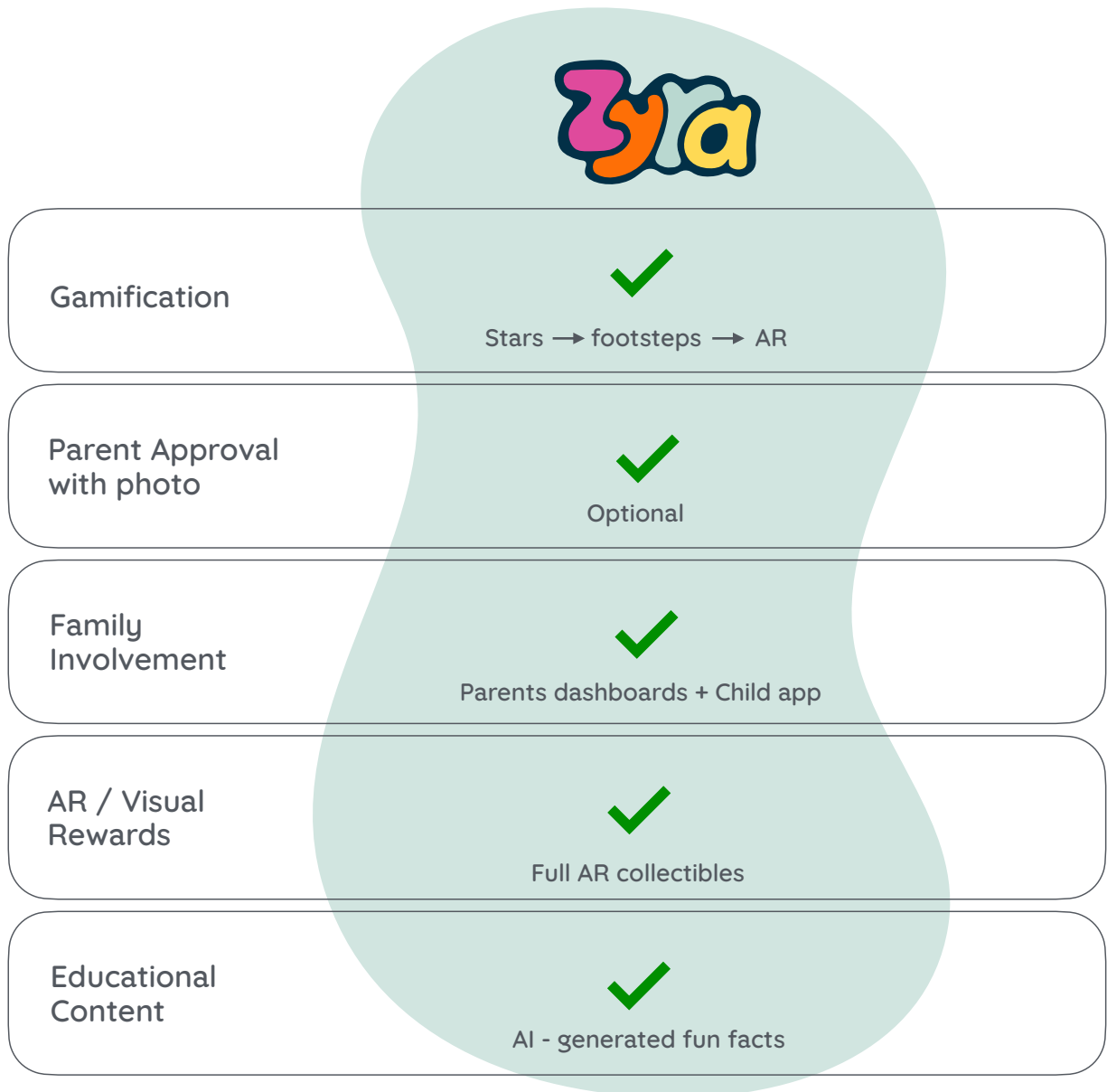
Joon	Familami	brili
✔ Virtual pets quests	✔ Pet + crystals system	✔ Starts / timers
✘	✘	✘
✔ Parent + child	✔ Whole - family dashboard	✘
✘	✘	✘
✘	✘	✘

Competitors Analisys

Competitive Landscape and Differentiation

Existing solutions show there is interest in habit and routine apps for children:

Joon lets kids earn coins for completing tasks, but relies on trust and doesn't verify completion with photos.
https://www.joonapp.io

FamiLami encourages family involvement with rewards but requires active parental supervision.
https://familami.com

Brili Routines focuses on visual schedules and step-by-step routines but lacks AR rewards and long-term engagement mechanisms.
https://brili.com

Zyra stands out by combining **photo-based verification**, **progressive AR rewards, and cross-device cloud sync**. Children are motivated to complete real-life tasks, parents can track progress reliably, and rewards are educational rather than purely entertaining, making the platform unique in this space.

5.1 Design Process

This diagram summarizes our entire design process: from the initial idea, through UX and UI, all the way to the documentation and development support.
Although the diagram appears linear, the actual process is iterative, with constant back-and-forth as we refine ideas, validate decisions, and adjust based on feedback and testing.

Problem / Idea ⟶ Research Users and Competitors ⟶ User Flow

▼

User Interviews ⟶ Insights and Personas ⟶ Wireframes

▼

Prototype ⟶ Usability Testing ⟶ Iterations

▼

UI & Branding ⟶ 3D Modeling ⟶ Final Mockups

▼

Marketing ⟶ Documentation ⟶ Colaboration with Developers

5.2 User Personas

Laura

AGE 42

LOCATION Vancouver, BC

OCUPATION Accountant at a logistics company (hybrid work).

User Story

"As a working mom who often feels exhausted, I want a tool that helps my kids be more responsible without me having to yell, so I can create a calmer home environment."

Personality

- Responsible.
- Protective.
- Demanding with herself and others, a bit impatient.

Pains / frustrations

- Feels exhausted from balancing work and family.
- Gets stressed about her kids being irresponsible.
- Feels guilty after yelling when she loses her patience.

Interests

Family   Reading Novels   Cooking

Goals

- Raise responsible kids with good habits.
- Maintain work-life balance.
- Reduce stress and arguments at home.

5.2 User Personas

Mario

AGE   46

LOCATION   Burnaby, BC

OCUPATION   Radio host (hybrid work).

User Story

"As a dad who wants to balance family life with personal time, I want an app that motivates my kids to do their responsibilities, so I don't always have to be chasing them and can enjoy more quality time together."

Personality

- Relaxed and sociable.
- Good communicator.
- Seeks balance between family and personal time.

Pains / frustrations

- Wants to be present for his family but also needs time for himself.
- Feels like he spends much time scolding the kids instead of enjoying them.
- Wants his kids to build habits without always relying on parental pressure.

Interests

Music   Friends   Family

Goals

- Keep the household running smoothly.
- Encourage his kids' autonomy.
- More quality time with partner and friends.

5.2 User Personas

Anouk

AGE	6
LOCATION	Vancouver, BC
OCUPATION	First grade student.

Personality

- Curious and smart.
- Rebellious.
- Very emotionally expressive.

Pains / frustrations

- Gets upset when things don't go as expected.
- Wants recognition and to feel special.
- Wants a cat, but her mom is allergic to cats.

Interests

Cats   Friends   Play   School

User Story

"As a curious and rebellious girl, I want the app to reward me and recognize me when I complete my responsibilities, so I feel proud and don't get frustrated so easily"

Goals

- Recognition when she does something.
- Fun moments at home, not just chores.
- Feel heard and understood.

5.2 User Personas

Joaquin

AGE 8

LOCATION Burnaby, BC

OCUPATION Third grade student.

User Story

"As a kid who doesn't like chores, I want the app to show my responsibilities in a fun way with rewards, so I feel motivated and don't get scolded all the time."

Personality

- Competitive.
- Sensitive and loving..
- Lazy with chores and schoolwork.

Pains / frustrations

- Doesn't like school or house chores.
- Feels bad when scolded because he is very sensitive.
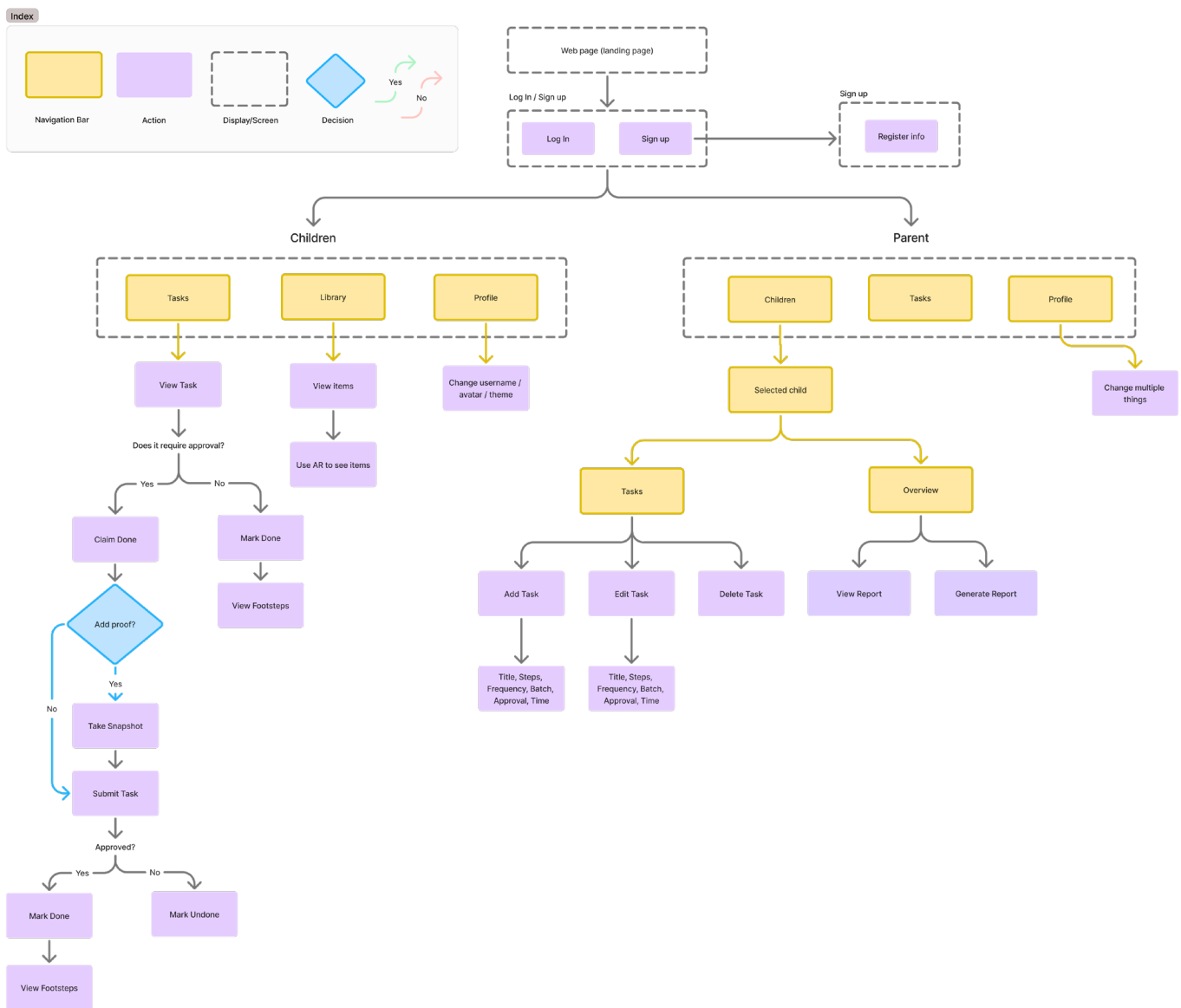- Only enjoys school when it involves sports.

Interests

Soccer   Dogs   Videogames

Goals

- Have more time to play and practice soccer.
- Recognized when he completes tasks.
- Avoid conflicts with his parents.

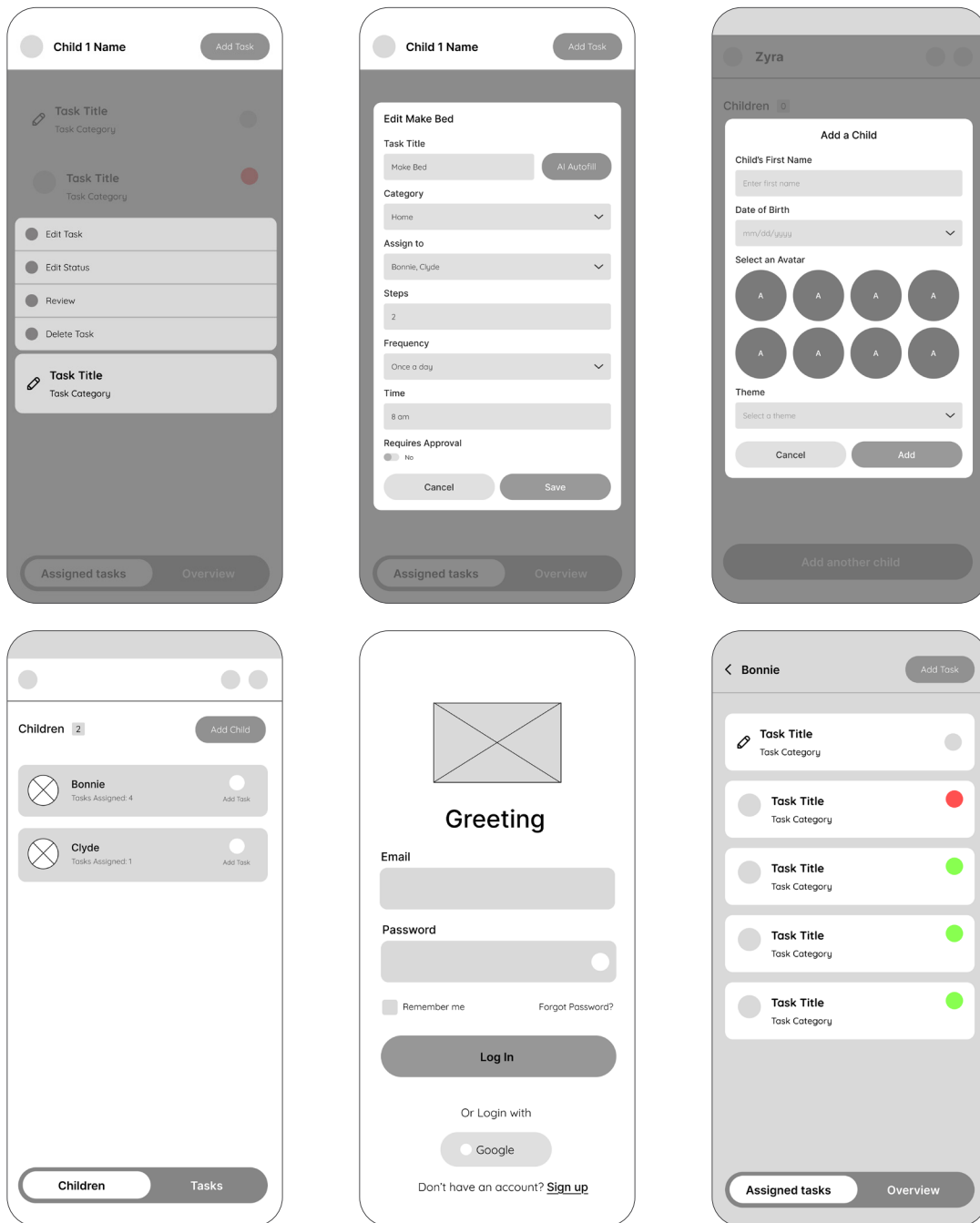# 5.0 Design Overview

5.3 User Flows

5.3 User Flows

The user flow illustrates how Zyra creates two parallel but connected experiences for parents and children. Parents begin by managing tasks: they can create new ones, edit existing ones, assign them to each child, and approve or reject completed tasks when needed. Their flow also includes access to reports and progress insights, helping them quickly understand how each child is developing habits over time.

Children follow a simpler, more guided path. They can see their assigned tasks, open each one to understand the steps, complete the activity, and submit proof, often through a quick photo. They can also view their earned items and rewards, including AR experiences that make progress feel fun and engaging.

Both flows come together in a shared progress visual, keeping families aligned and motivated while maintaining clarity and ease of use for each type of user.

5.0 Design Overview

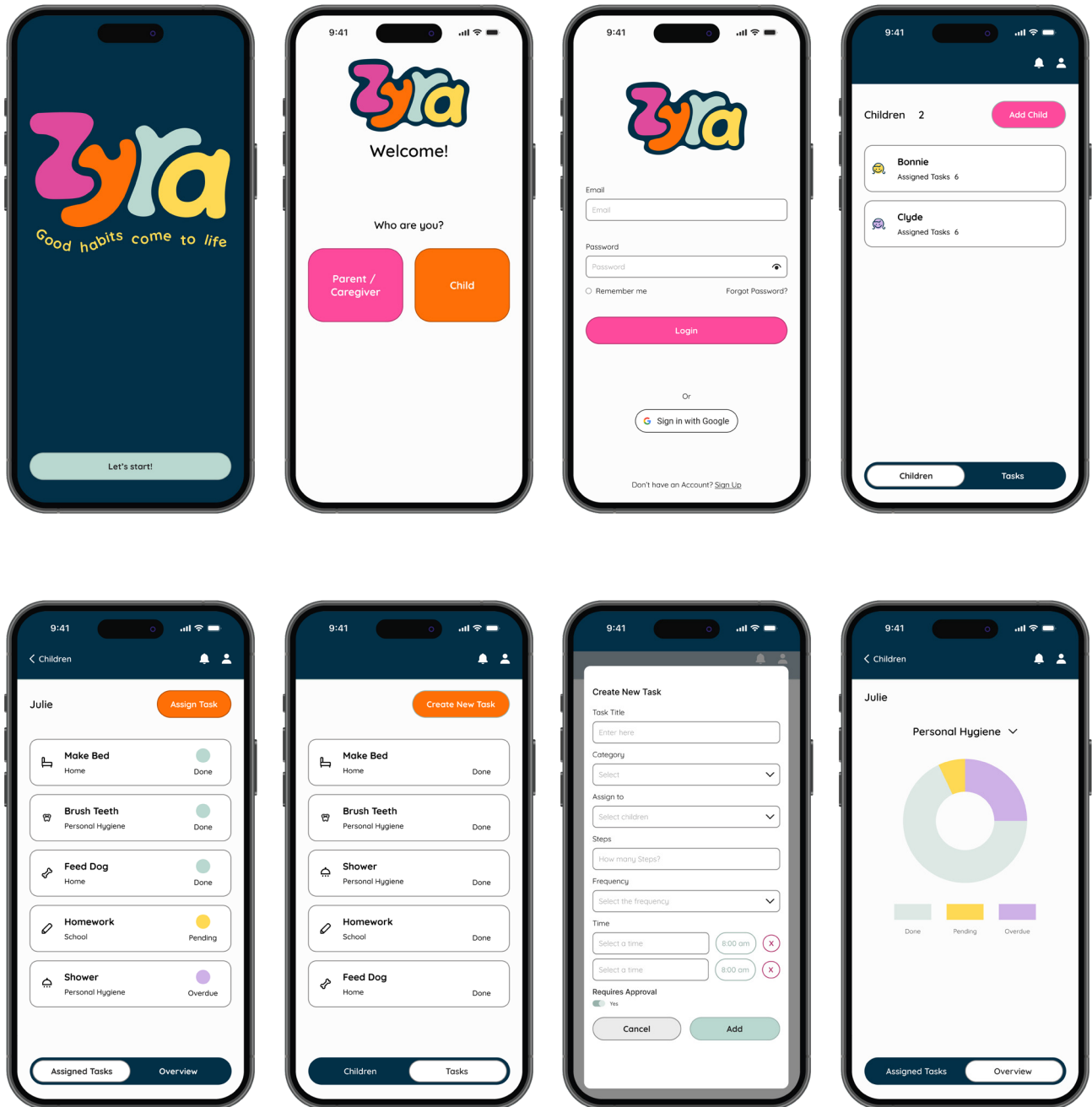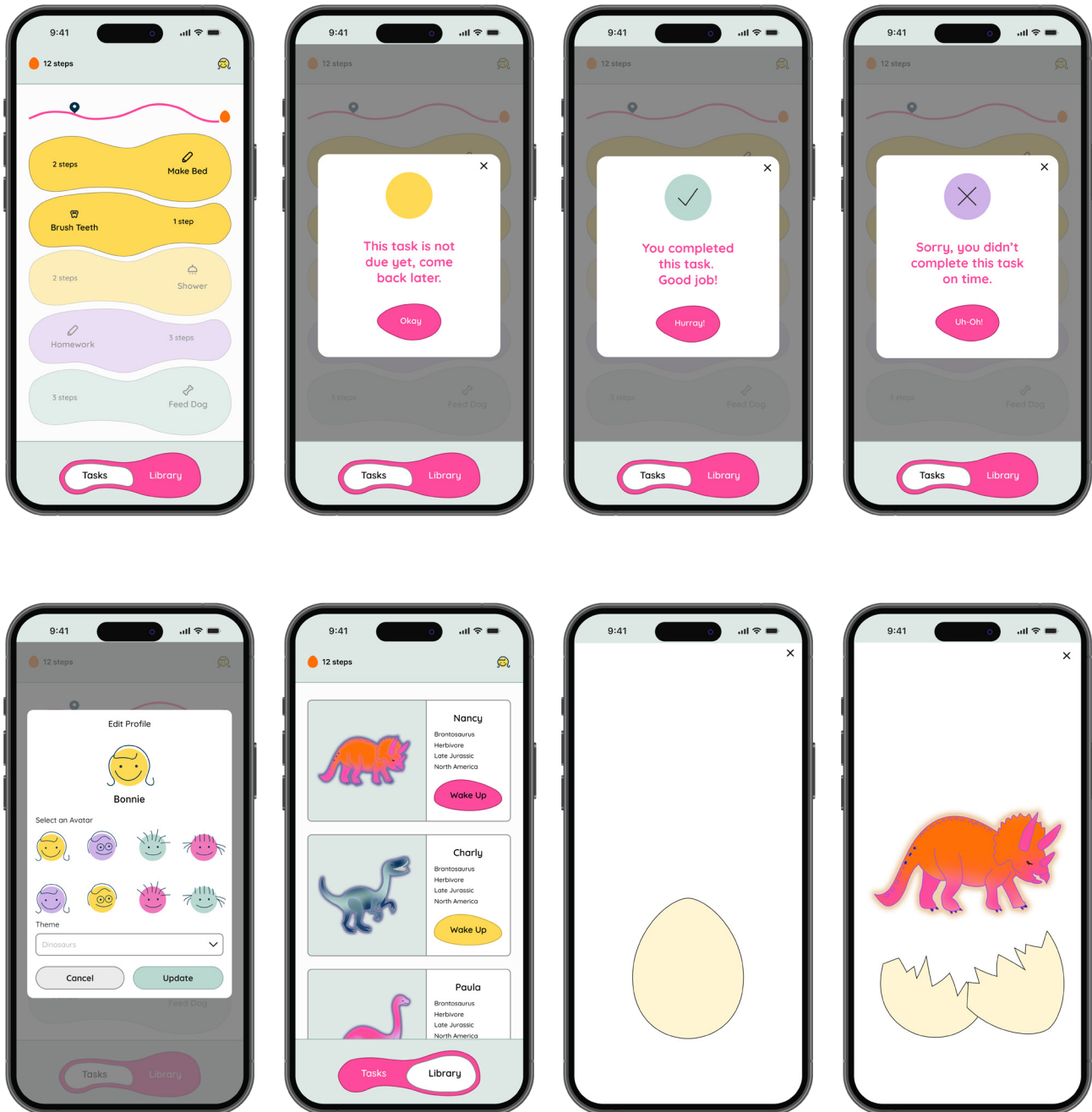## 5.4 Wireframes Parents

5.4 Wireframes Children

This is just a representative sample of all the design work

5.0 Design Overview

5.5 Mockups Parents

5.5 Mockups Children

This is just a representative
sample of all the design work

5.6 Branding

Logo

Our logo is hand-drawn to match the organic shapes used throughout the app. Its flexible, playful style reflects how Zyra's elements adapt to each other.

Colour Palette

DF4A9C

FED954

B9D8D0

FE6F06

023047
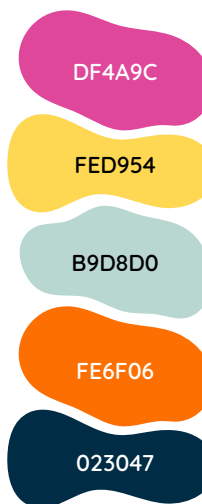
We use bright, bold, and contrasting colours so kids with different personalities can see themselves in the app. The palette feels energetic, expressive, and easy to recognize.

Typography

Quicksand

We chose Quicksand because it's friendly, modern, and highly readable. Its rounded shapes align with Zyra's playful visual style while keeping everything clear and approachable.

Heading 1 — Quicksand Bold 32px

Heading 2 — Quicksand Bold 24px

Button Child — Quicksand Semibold 18px

Button Parent — Quicksand Semibold 16px

Secondary text — Quicksand Regular 14px

5.7 AR Rewards

Hand-Drawn Concept Sketches	Colours and Detailing	3D Generation and Rendering
PROCREATE	PHOTOSHOP	TRIPO 3D
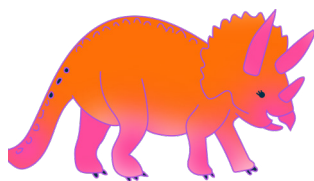
Triceratops
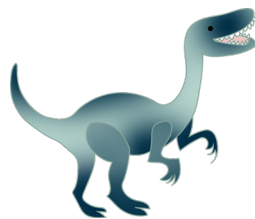
Velociraptor
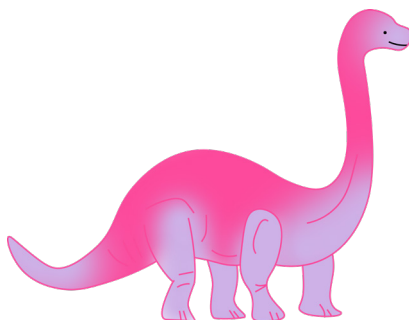
Brontosaurus
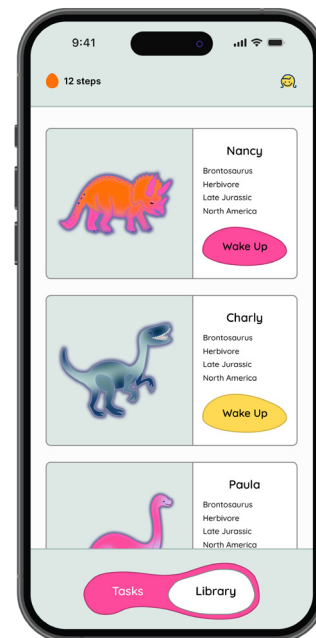
5.8 UI Kit

Parent Interface

Add Text
Add Text
Add Text
Add Text
Add Text
Add Text
Add Text

< Children

Bonnie
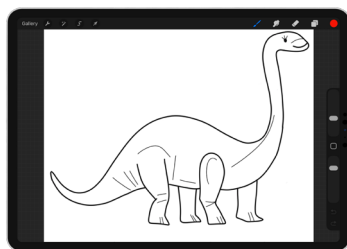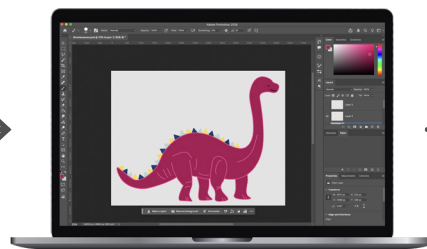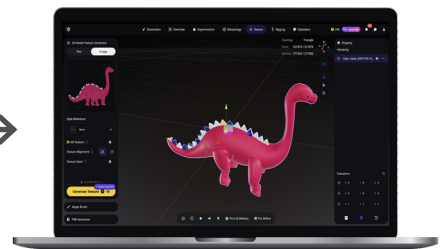Assigned Tasks 6

One | Two
One | Two
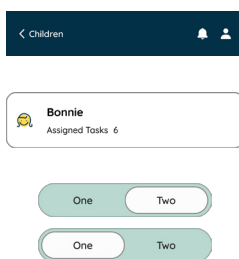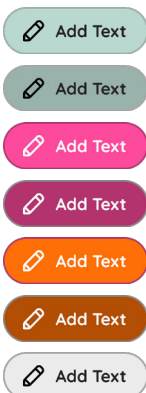
We designed the parent interface with rounded, familiar buttons and a functional use of our colour palette to make actions easy to understand. We relied on strokes instead of shadows to keep the design clean, modern, and lightweight.

Icons

We designed a set of icons mainly to accompany the tasks and help kids who are not yet reading easily identify each activity.

Children Interface

2 steps   NOW   Make Bed
Make Bed   NOW   2 steps
2 steps   NOW   Make Bed
Make Bed   NOW   2 steps
2 steps   NOW   Make Bed
Make Bed   NOW   2 steps

2 steps   Make Bed
Make Bed   2 steps
2 steps   Make Bed
Make Bed   2 steps
2 steps   Make Bed
Make Bed   2 steps

Wake Up   Wake Up   Wake Up   Wake Up
Wake Up   Wake Up   Wake Up   Wake Up

Tasks | Library
Tasks | Library

Nancy
Brontosaurus
Herbivore
Late Jurassic
North America

Wake Up

For kids, we created organic shapes that adapt fluidly to the layout and to each other, making the experience playful and intuitive. Lower opacity signals tasks that aren't available yet, and navigation is simplified to a single toggle button. Kids can personalize their experience with fun, colourful avatar options, and the library uses cards to clearly show each item with an image, name, key details, and the "Wake Up" AR button.

6.0 Technology Overview

6.1 Tech Stack

Tech Stack
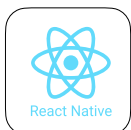
React Native

Express

Node

Mongo

Supabase

JWT

Zustand

Socket IO

AWS

Expo Go

Open AI

AR Quick Look

Augmented Reality

- AR Quick Look.

- USDZ 3D Asset Rendering.

- Real-world object preview.

AR Quick Look

Artficial Intelligence

- OpenAI GPT-4 API.

- Task Generation.

- Fact generation based on children age.

Open AI

6.0 Technology Overview

6.1 Tech Stack

Frontend: Zyra's frontend is built with React Native and Expo, currently targeting iOS, with the same codebase allowing us to expand to Android quickly in the future. We also use Zustand for lightweight, predictable state management across the app, so shared data (like the logged-in user, selected child, and task lists) stays in sync between screens without complex prop drilling. For AR features, we use Apple's built-in AR Quick Look with .usdz files to display 3D models in AR on iOS, integrated within our React Native + Expo app. We also use Expo Push Notifications to send real-time alerts to parents when their children complete tasks or when important updates occur. In addition, we use react-native-chart-kit to display clear, visual dashboards for parents so they can easily track their child's progress over time.

Backend: The backend is built with Node.js and Express, providing a robust and efficient API server for the application. Real-time features, such as notifications and live updates to children's task progress, are supported using Socket.IO. In addition, we use cron-based scheduled jobs (cron.js) to periodically check for upcoming tasks. Specifically, cron.js identifies any child tasks that are still incomplete and due within the next 24 hours; when such tasks are found, the system generates alerts that include the exact time the task is due, helping children and parents clearly see and respect the deadline.

Authentication: Zyra uses JWT-based authentication with bcrypt-hashed passwords, so credentials are never stored in plain text and access is controlled by user role (parent vs. child). On the child side, we use device-level secure storage (Keychain/Keystore) for the child's ID and related data instead of normal local storage to better protect sensitive information.

Database: We use MongoDB as our primary database because its flexible document structure makes it fast and easy to adapt as our data model changes. In addition, we use Supabase to store and manage images and other media files, keeping large assets separate from our main application data.

Third-Party APIs: We use OpenAI to auto-generate suggested tasks for parents, making it much easier and faster to create new chores. We also use OpenAI to generate age-appropriate fun facts for children about the objects they unlock, making the experience more engaging and educational.

Hosting: The backend is deployed on AWS, giving us a reliable, scalable environment for our API server and making it easier to handle future growth in users and features.

6.2 System Architecture

Zyra follows a modular client–server architecture designed for scalability, reliability, and multi-platform support. The system consists of a React Native mobile application, a Node.js/Express backend hosted on AWS EC2, and a MongoDB database that stores all child profiles, tasks, and AR reward data. The architecture ensures separation of concerns: the mobile app handles all user interaction and displays progress, while the backend manages business logic, task generation, authentication, and AI integrations. A reverse proxy (NGINX) routes requests securely and enables SSL, and PM2 ensures continuous backend uptime. AR assets and uploaded task verification images are served through a CDN-backed storage (Supabase), reducing load on the server and improving mobile performance. AI services are integrated as microservice endpoints, allowing the system to generate child-friendly dinosaur facts and autofill task fields without affecting core backend operations. This structure allows Zyra to operate smoothly across different devices while supporting real-time sync, photo verification, and progressive AR unlock features.

1. The app sends a POST request $\longrightarrow$ Node backend stores the Task $\longrightarrow$ generates TaskAssignments for upcoming days.

2. A JWT stored in SecureStore authenticates the child without passwords.

3. The mobile app fetches task assignments from the backend filtered by today's date.

4. Photo $\longrightarrow$ uploaded to Supabase $\longrightarrow$ backend updates TaskAssignment $\longrightarrow$ notifies parent.

5. Backend updates footsteps $\longrightarrow$ app checks milestones $\longrightarrow$ unlocks AR model + fetches AI fun fact.

6.2 System Architecture

```
┌─────────────────────────────────┐
│                                 │
│        React Native App         │
│                                 │
└─────────────────────────────────┘
                 │
                 ▼
┌─────────────────────────────────┐
│           AWS EC2               │
│   (Node.js + Express backend)   │
└─────────────────────────────────┘
       │          │          │
       ▼          ▼          ▼
┌──────────┐ ┌──────────┐ ┌──────────┐
│ Mongo DB │ │ Supabase │ │ Open AI  │
│  Atlas   │ │ Storage  │ │   API    │
│(Database)│ │(Image /  │ │(AI       │
│          │ │3D Models)│ │Autofill +│
│          │ │          │ │ Facts)   │
└──────────┘ └──────────┘ └──────────┘
```

6.3 Data Model

Parents Accounts

🔑	_id	string
🔗	children [array]	string
	first_name	string
❄	email	string
	password	string

Children Accounts

🔑	_id	string
	first_name	string
	birth_date	timestamp
	image_url	string?
🔗	tasks_batch [array]	string
	star	int
	steps	int
	theme [array]	string
	qr_code	string
🔗	objects [array]	string
	created_at	date
	updated_at	date

AR objects

🔑	_id	int
	ar_name	string
	unlock_stage	int
	model_url	string
	img_thumbnail	string
	is_unlocked	boolean
	date_unlocked	timestamp
	fun_fact	string

AR Session

🔑	_id	int
	child_Id	int
	ar_object_id	int
	session_start	timestamp
	session_end	timestamp
	duration	int

Task_Assignment

🔑	_id	string
🔗	child_id	string
🔗	parent_id	string
🔗	task_id	string
	status	enum
	proof_image	string
	completed_at	timestamp
	created_at	timestamp
	updated_at	timestamp

Rewards

🔑	_id	int
🔗	child_id	point
	next_object	string
	image	string
	fun_fact	string
	ar_model	string?
	current_footsteps	int
	required_steps	text
	is_unlocked	boolean

Tasks

🔑	_id	int
	title	string
	description	string
	icon	string
	category	enum
	frequency	string
	footsteps	int
	repetition	string
	completed_at	timestamp
	created_at	timestamp
🔗	batch_id	int

Batches

🔑	_id	int
	title	string
🔗	tasks [array]	string
	created_at	int
	updated_at	timestamp

Frequency

🔑	_id	int
🔗	task _id	int
	frequency_type	enum
	days_of_week [array]	string
	end_date	datetime
	total_repetition	int
	created_at	timestamp
	updated_at	timestamp

☆ AI generated themes ●

AI-generated themes create dynamic visual worlds that adapt to each child's interests, making chores feel fresh and fun every week. This ensures kids stay engaged longer because the app feels new, personalized, and exciting every time they use it. This feature is needed because children lose interest quickly, and refreshed visuals help maintain motivation and prevent routine fatigue.

✎ Customization in Task creation ●

Customization inside task creation - Families can tailor tasks, routines, and reward pathways however they like, ensuring every experience matches their unique household needs and parenting styles. This matters because every family is different, and flexible customization makes the app useful for a wider range of habits, ages, and daily routines.

🎁 Playground to show all rewards at the same time ●

Reward Playground is a dedicated space where kids can explore and interact with all their AR rewards in one place, boosting motivation and giving parents more ways to encourage positive habits. It's important because kids are more motivated when they can see and play with the rewards they've earned, making habit-building more meaningful and enjoyable.

8.0 Meet the Team

in hengameh-nami   **○** Hengamehnm

A full-stack developer on the Zyra project. I hold a Bachelor's degree in Computer Science and have almost two years of hands-on experience building web and mobile applications using JavaScript, TypeScript, React, React Native, Node.js, PHP, and Swift, along with databases such as MySQL, SQLite, and MongoDB. I integrate AI models into my projects to build smarter, more useful features, and I enjoy collaborating with others to create clean, reliable applications that solve real-world problems.

Hengameh Nami
Project Manager
Full-Stack Developer

in maraheemkhan   **○** raheemk8801

A full-stack developer with a Bachelor's in Computer Science Engineering and 1 year of industry experience. Completed two industry projects, one using React and the other with Angular. Currently pursuing a Post Graduate Diploma in Web and Mobile App Development at Langara College and working on Zyra. Skilled in React, React Native, Node.js, MongoDB, and related technologies, focusing on building efficient and user-friendly applications. Driven by a passion for creating intuitive and efficient applications, always exploring new technologies and frameworks, and dedicated to delivering innovative, high-quality solutions.

Raheem Abdul
Full-Stack Developer

in tejvir-kaur   **○** TejvirKaur
⊕ tejvirkaur.dev

A full-stack developer with experience building responsive, user-focused web and mobile applications. I hold a Bachelor's and Master's in Computer Application and a Post Graduate Diploma from Langara College. Skilled in HTML, CSS, JavaScript, React. js, C, C++, SQL, and MongoDB. I recently worked on Project Zyra, where I implemented an AR feature enabling children to interact with 3D models. I'm passionate about creating intuitive, user-friendly digital experiences.

Tejvir Kaur
Full-Stack Developer

8.0 Meet the Team

Namit Jaitly
Lead Full-Stack Developer

in namit-jaitly   github Namit Jaitly
🌐 https://namitjaitly.github.io/Namit-Jaitly-Portfolio

I'm a Full-Stack Developer with three years of experience. I work with Swift, PHP (MVC), JavaScript, and databases like SQL, MongoDB, AWS, and SQLite. I'm skilled in Node.js, React, React Native, and modern front-end frameworks. I currently serve as the Lead Full-Stack Developer for Zyra, where I design system architecture and build features like data visualisation, parental controls, rewards, and organic shapes, and autofill using AI for tasks. I'm passionate about new technologies and committed to continuous learning.

Alejandra Zapien
UX/UI Designer

in alejandra-zapien
🌐 https://azapiensantacr00.github.io/alejandra-zapien

UX Designer in Zyra project. I'm a licensed architect and worked for several years at architecture firms, as part of the design team and the development of construction documents. I'm good at connecting spatial design with user experience, and I have a strong eye for details and visual communication. My architectural background helps me create intuitive user flows and organized interface structures that translate complex functionality into accessible user experiences.

9.0 Content Sources

Business Research Insights. (2023). Habit tracking app market size, share, growth, and forecast 2023–2033.

https://www.businessresearchinsights.com/market-reports/habit-tracking-app-market-105035

Common Sense Media. (2022). Parenting in a digital age: How technology shapes families today.

https://www.commonsensemedia.org/research/parenting-in-a-digital-age

EDUCAUSE Review. (2019). Augmented reality in education.

https://er.educause.edu/articles/2019/10/augmented-reality-in-education

Market Data Forecast. (2023). Gamification in education market—Forecast (2023–2033).

https://www.marketdataforecast.com/market-reports/gamification-in-education-market

Pew Research Center. (2020). Parenting children in the digital age.

https://www.pewresearch.org/internet/2020/07/28/parenting-children-in-the-digital-age/

Google Firebase. (n.d.). Firebase use cases: Build apps with real-time sync and multi-device reliability.

https://firebase.google.com/use-cases