LyftKids

Design Studio 1

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Table of Contents

Purpose

This document serves to provide a high-level description of the goals, constraints, assumptions and decisions we made with respect to our preliminary design for our product: an application for LyftKids, a shuttle service designed to help busy parents have their children driven to places they need to be. This document is not meant to represent entirely the set of requirements describing its functionalities and design, simply our initial proposal of the application's client-side design. We will use this document to explicitly discuss the points serving as a foundation for developing a product that will satisfy our audience and stakeholders alike.

Goals

The primary objective our system is to facilitate, monitor, and secure transactions between parents and drivers that will enable parents to easily request a ride for their children to a destined location reliably. Our priorities include the safety of both the children and drivers, simplicity of the design, accessibility of the software, and security of the system. To achieve this, the software design revolves around the following functionality goals:

1. Allow parents to create accounts with a username and password. These accounts will have full access to features unique to parent accounts including:
    - Requesting sub-accounts called child accounts which are linked to its parent account and serve as accounts with limited features for children. Parents will be sent unique usernames and passwords for every child account request.
    - Deleting/Locking child accounts
    - Completing a transaction
    - Approving transactions requested by child accounts
    - Saving payment information
    - Rating and commenting on a driver's service
    - Reporting a driver
    - Viewing the current location of their children on a map
2. Provide features that are accessible by all accounts to serve as a means of communication, transparency and quick accessibility to our service. These features are listed, but not limited to:
    - Requesting a ride
    - Searching and selecting a specific type of ride based on seats available
    - Viewing the current location of the driver on a map
    - Messaging between parent and child accounts
    - Video transmission between parent and child accounts

3. Ensuring children enter their assigned driver's vehicle with the following features:
    - A QR-code verification system that allows children and drivers to ensure they have met their assignment
    - Portfolios including photo identification of the child, driver and vehicle which is viewable by drivers, parent accounts and child accounts
4. Implementing an interface to simplify interactions between the software and its users by:
    - Minimizing clusters of buttons
    - A brief tutorial accessible by any user
    - Allowing parent accounts to schedule rides daily and weekly
5. Arranging safe and fast trips by:
    - Optimizing trips and routes
    - Only listing drivers in excellent standings
    - Storing information about the estimated time to arrival and tracking checkpoint histories

Assumptions

For practical purposes, the following items have been determined to be assumptions made when designing our software. It is important to note that these assumptions are not absolute and does not imply that our system is inflexible; these merely describe what we believe are reasonable necessities. We want stakeholders to understand that the nature of software design is constantly changing, thus our designs are modular and ready to accommodate any changes and/or circumstances.

1. Children must be between the ages of five to seventeen years old, and able to ride in a car without a car seat.
2. Due to the growing presence and reliance on technology in our society, it is reasonable to assume that users of our software will have mobile devices or platforms with reliable access to any of the services listed:
    - Wi-fi
    - Network provider
    - Internet access
3. It is reasonable to assume that users with mobile devices or platforms will have consistent access to the internet as it is standard for mobile phones to have a network provider and hardware enabling internet connection. The internet serves as the primary method of connection between our system and our users.
4. Our service is targeted to mainly serve parents with children seeking a simple, safe and reliable transportation service for their child.

5. A database is necessary to store the expansive amount of information regarding transactions and accounts that the system and stakeholders may need to access at any point in time.
6. Technological accommodations may need to be met assuming the number of users increase over time. We will need to expand databases and servers to maintain a steady, secure and optimized performance for our users.
7. User and/or stakeholders may demand a features to be integrated in the future, thus potentially limiting the complexity of our design.

Constraints

Every design will be naturally limited by constraints and listed below are possible limitations that we conceive as software designers. We believe that these constraints have a significant impact on the preliminary design decisions made, and it is pertinent that stakeholders understand that our design decisions optimize quality and satisfaction for users given these factors.

Service

1. Children must not wait more than fifteen minutes for an available ride to ensure the children's safety as well as the service's timeliness and reliability. The application shall terminate a request, issue a refund, and notify parents and children if the situation does occur.
2. Children will be unable to request a ride without authorization from an associated parent account to prevent children from abusing the service.
3. Service must implement a refund system for cancelled rides.

Hardware and Software

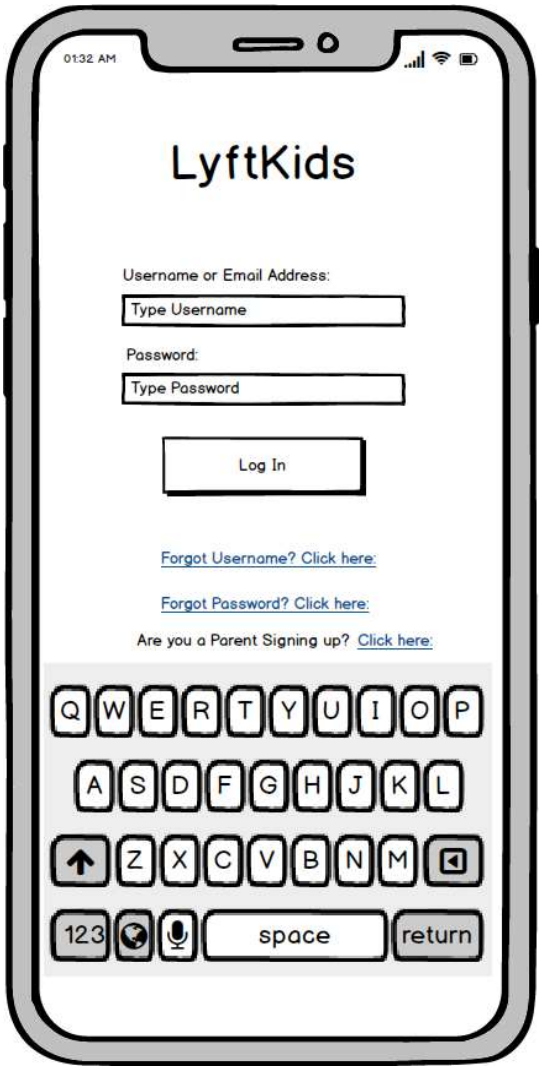
1. All users, children included, are required to have a mobile device.
2. Our software's speed will depend on the performance of the user's mobile device and/or platform.
3. The identification of a device's location is based on a user's mobile device's GPS unit, thus only as accurate as the information provided by that unit.
4. Our primary users include children, drivers, and parents; it is necessary to have a simplistic and minimalistic interface.
5. External services on a user's mobile device contain information needed by our software.

Legal

1. Legal ramifications are serious factors to consider when developing a software dealing with privacy and sensitive information. Our software will understandably be unable to implement features that may potentially violate human rights.
2. LyftKids will be available to children with disabilities. While our current designs do not reflect this constraint, it is an option we will be implementing in future iterations of the design.

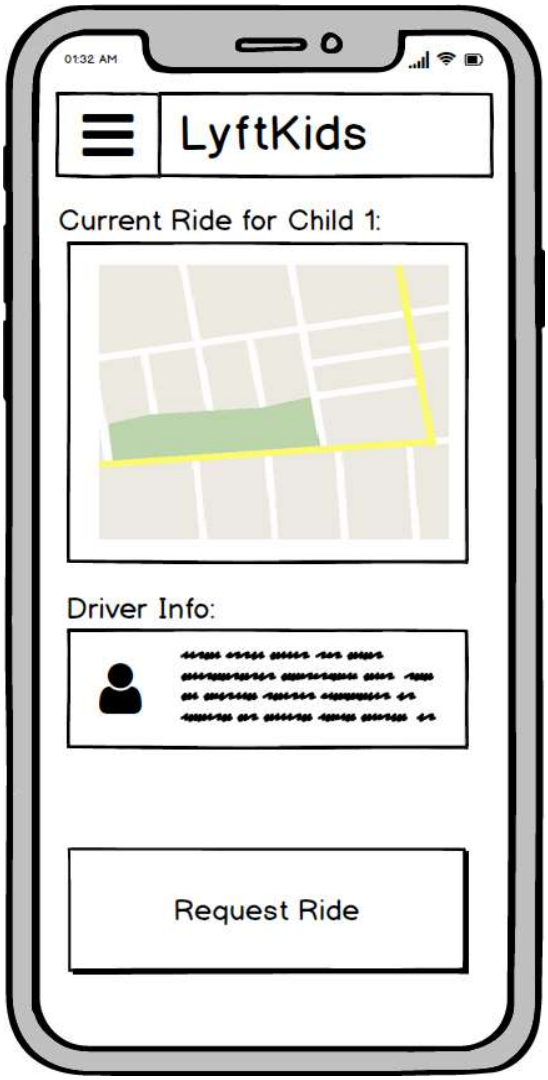
Mockups

The following section contains design mockups of the LyftKids interface for parent and children users. All Mockups were made using Balsamiq.



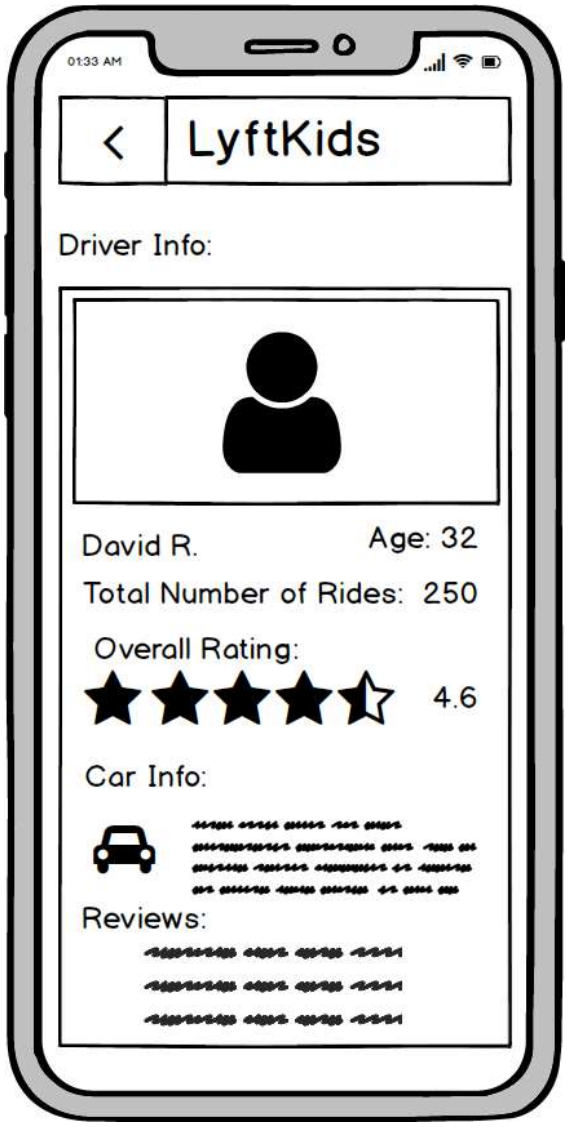
Login Page

Login page for both parent and child accounts. This is the first page parents and children will see when first opening LyftKids. Parents can create an account from this screen. Parents can then create accounts for their children.



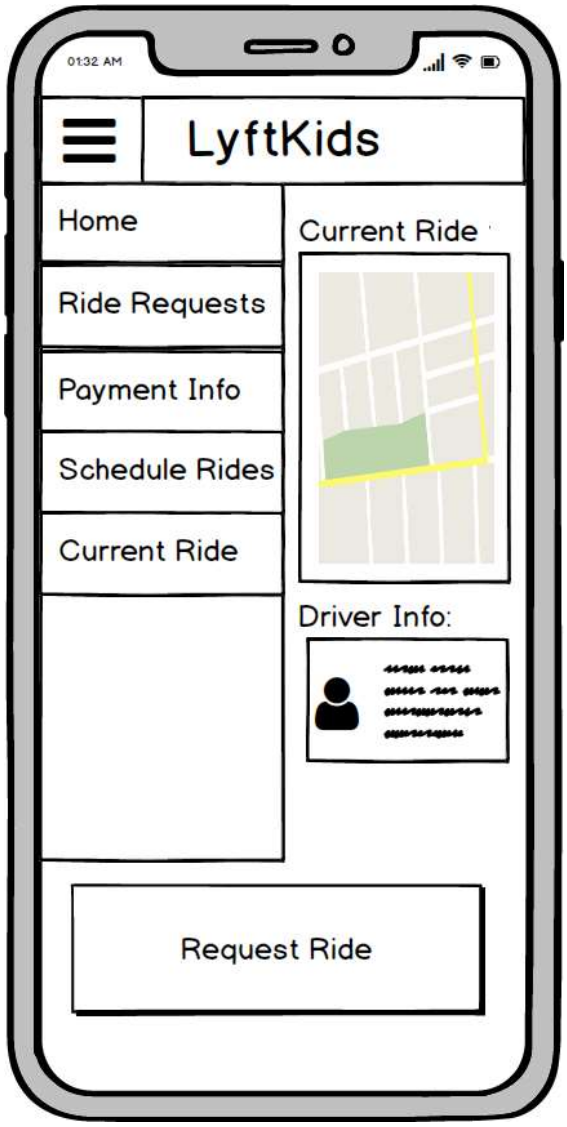
Home Screen

The home screen when logging into account for parents; any ongoing ride will automatically be displayed on this screen. A drop down menu of features is available in the top left corner. The request a ride button is the main button present here for easy access.



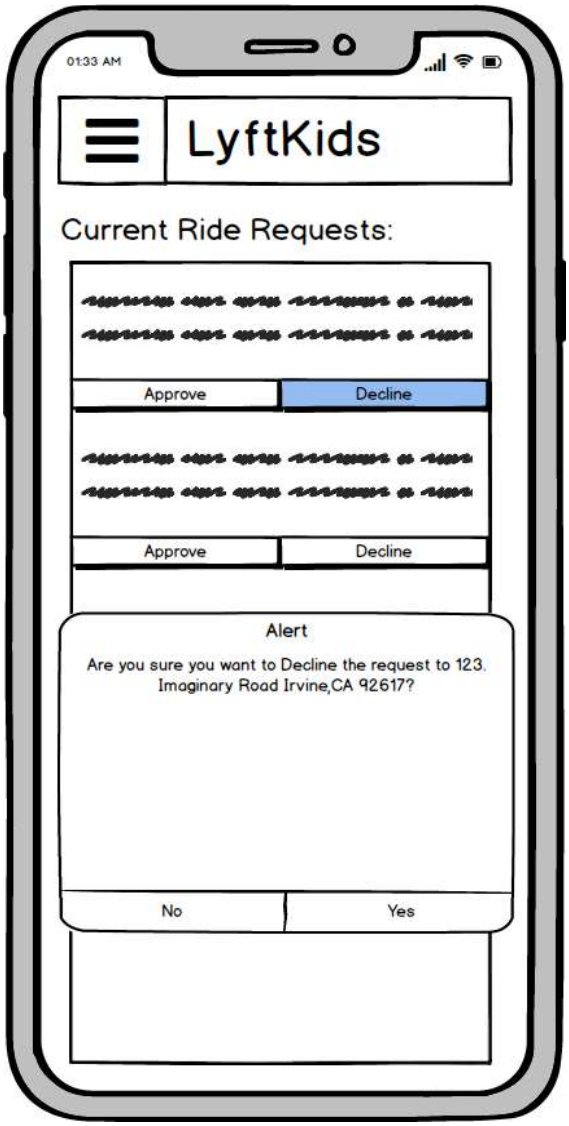
Driver Information

Users can view information about their current driver by clicking on the smaller preview on the home screen. This detailed display contains a picture of the driver, their name, age, rating, car information, and reviews.



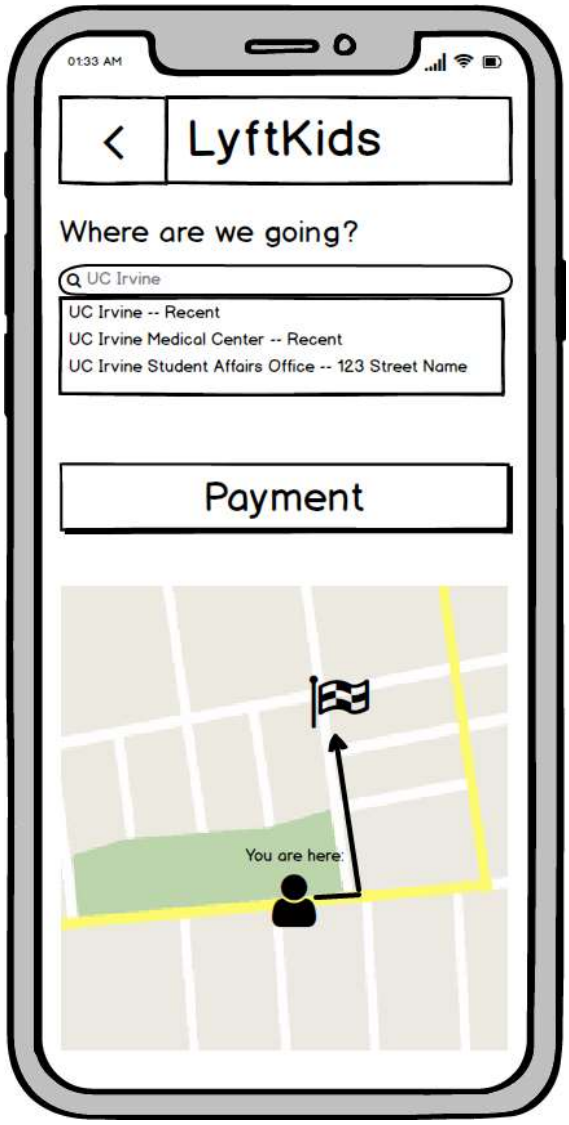
Default/Home Screen Menu

The top left button can be selected to reveal this drop down menu. This is the main method of navigating the application. From here, users can visit the main pages within the app. This menu shall be accessible from every page, and no more than three buttons presses away for other pages.



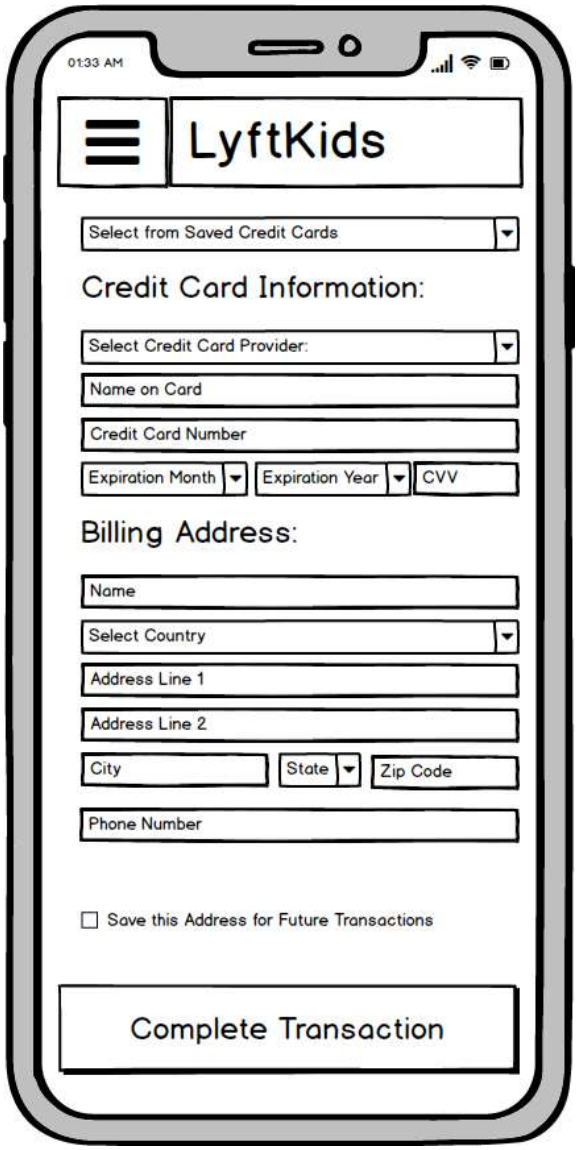
Ride Requests

A screen where parents can manage ride requests made by their children. Parents can accept or decline these requests. Children can make requests, but parents must authorize them to prevent children from abusing the service.



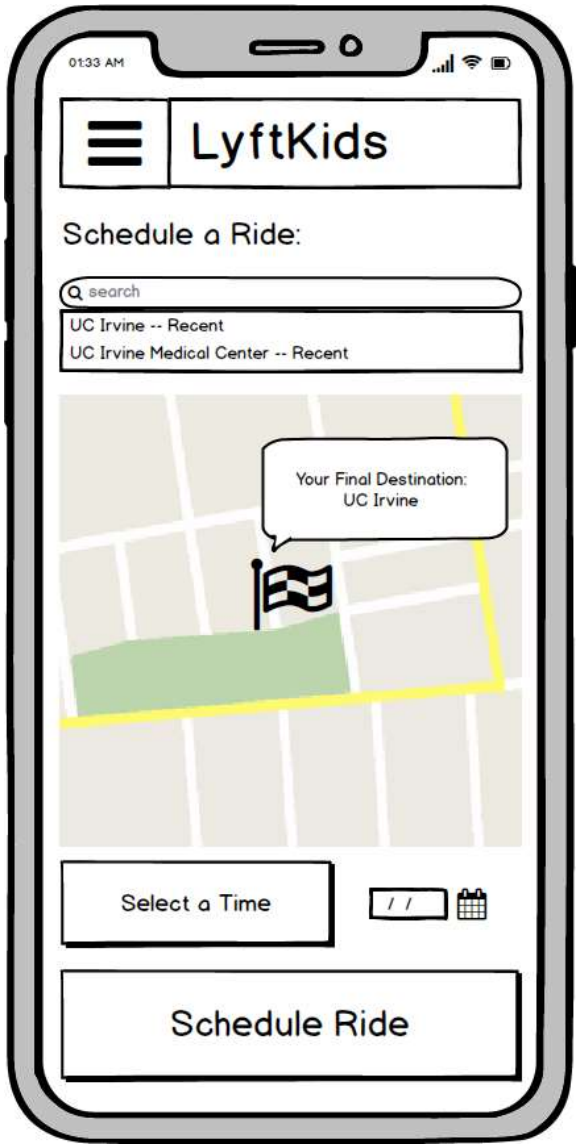
Search For Ride

Parents and children can schedule rides through this screen. The software uses the user's current location as the pick up location. The user inputs a destination by typing into the search bar, which will automatically make suggestions. Once the destination is selected, users proceed to the payment screen.



Payment

A display where parents complete transaction. This allows parents to add a new payment method, save that method for future payments, or pay using an existing payment method.



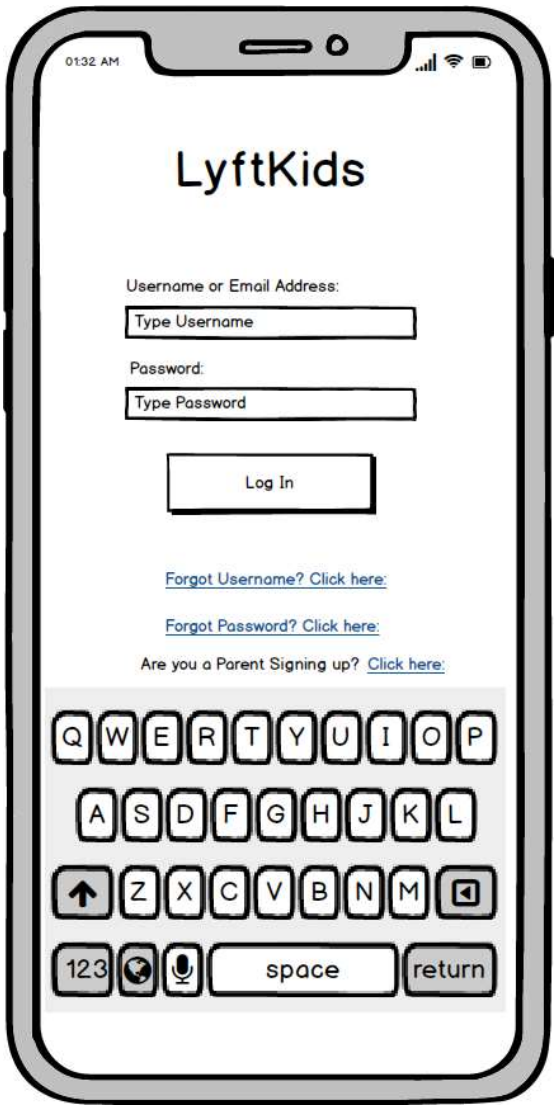
Schedule a Ride

Parents can set up rides for later dates, or set up rides that repeat on a weekly basis. Users can set the pick up and drop off locations through the search bar, set the time for the rides with “Select a Time”, and set up what days the ride will occur on with the calendar option.

Child's Trip

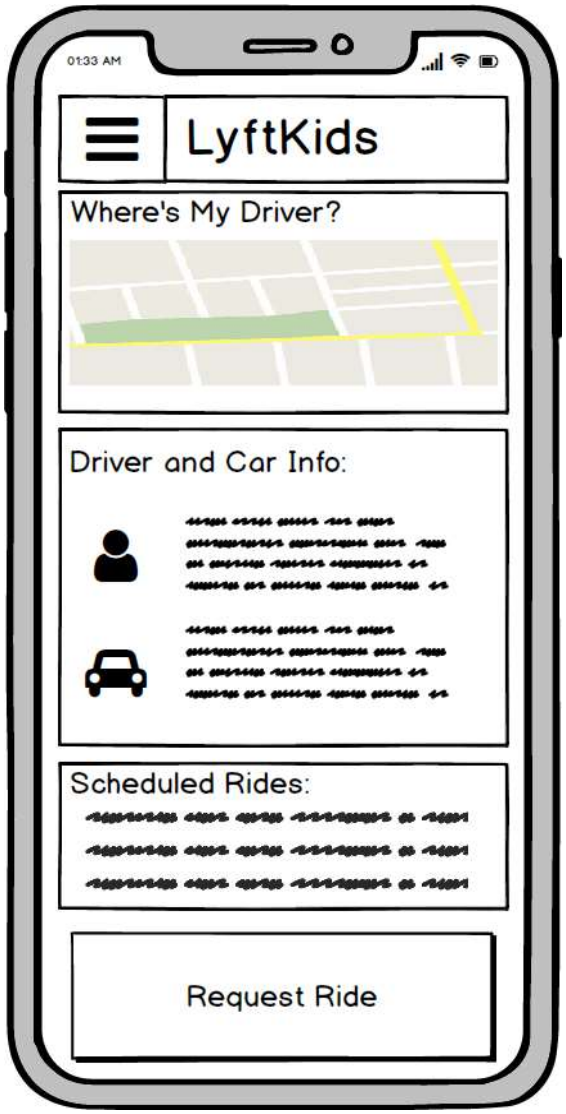
Parents can monitor their child's trip with a map that visualizes its progress in real time.

The following mockups are designs for child accounts.



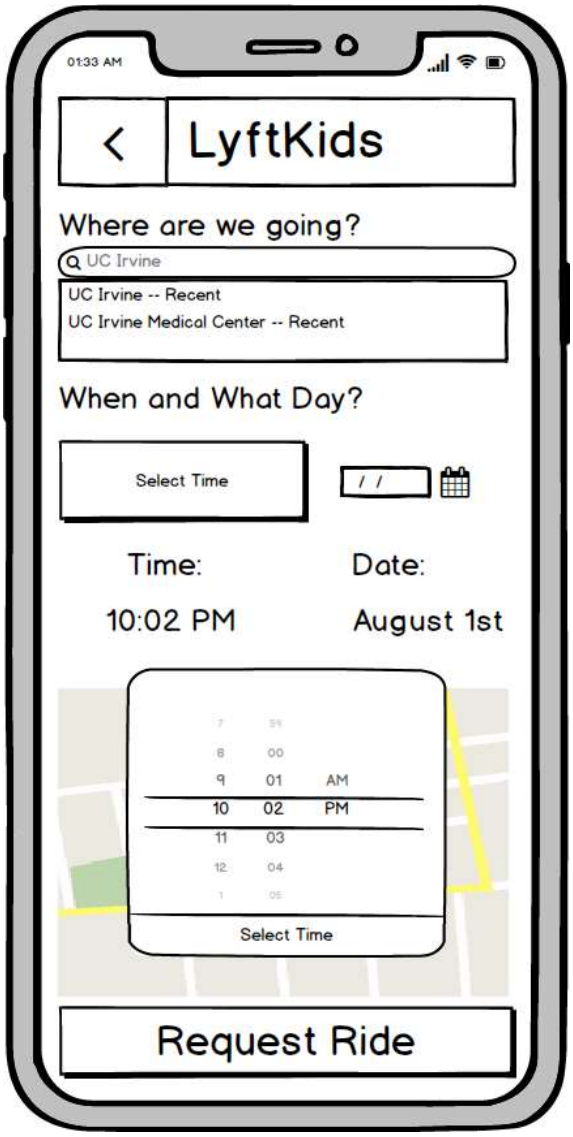
Login

Children have the same login screen as adults, but are unable to make their own accounts. Parents must give children the login information for their account.



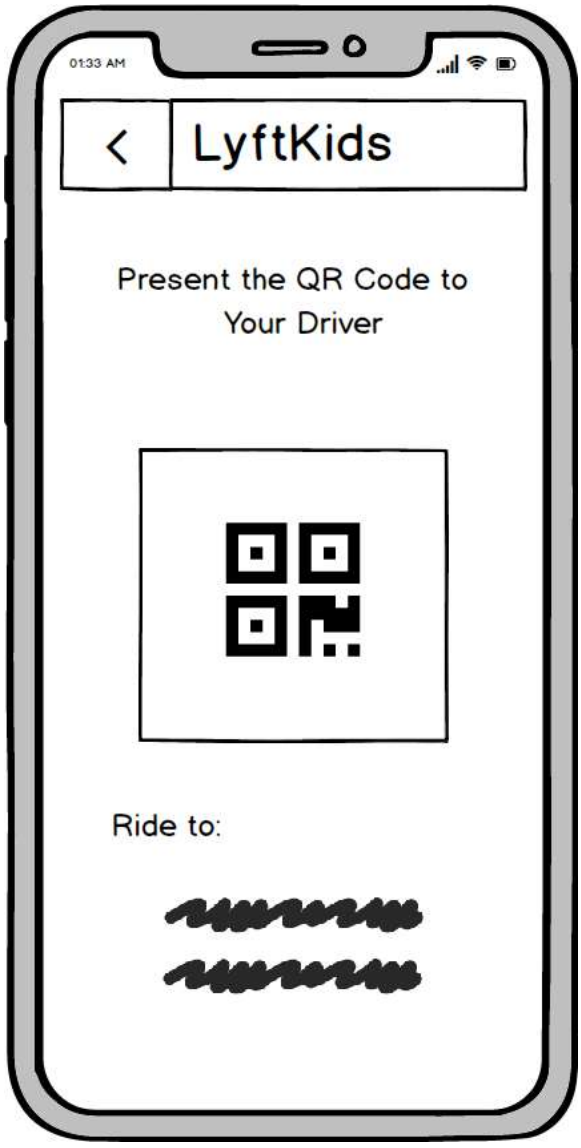
Home Screen

The home screen for children's accounts contains an overview of their current and scheduled rides (if any), and the option to request a ride.



Ride Requests

Children can request a ride, and must search for a location then set a time and day. Any requested rides are automatically sent to parents, who must authorize them. Children accounts cannot pay for rides.

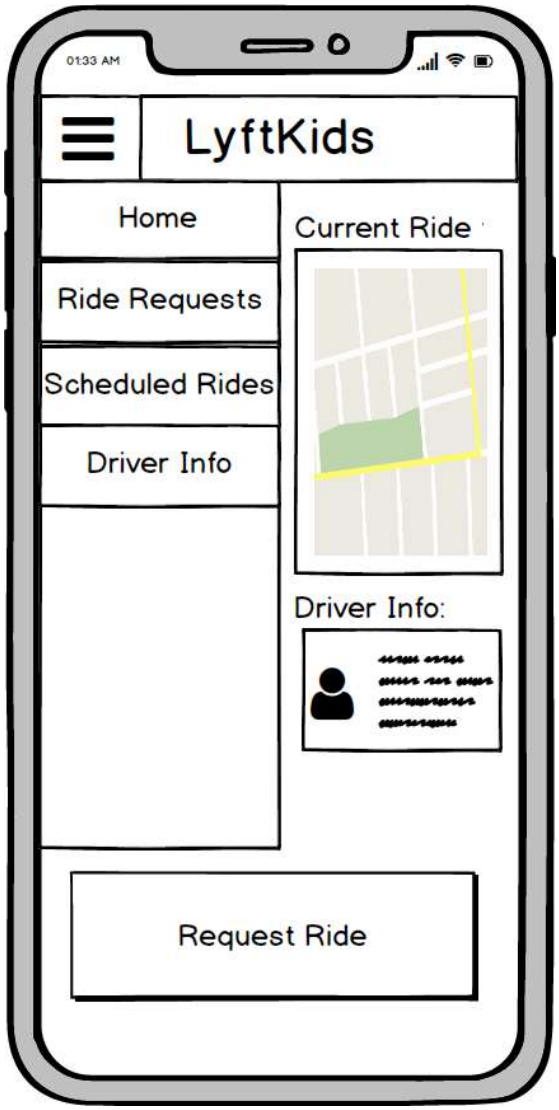


QR Code

When a driver arrives to the pick up location, each and every child that is authorized to ride in the vehicle must present their own QR code (which automatically pops up) to the driver. The driver will scan the code with the app. This will confirm that the driver has identified the right children and vice versa. Rides will not begin until all QR codes have been verified.

Driver/Trip Display

Children are presented with a visual map when waiting for or during a ride.



Menu

This is a drop down menu for the child account, while similar to the parents account, it is limited to the features that child accounts can use.

Alternate Designs

The following designs were alternatives that were seriously considered for LyftKids. We ultimately decided to not pursue either of these options for reasons detailed for each design below.

Better Tracking - Alternate Design 1

One of the potential issues we identified with LyftKids is that parents may be unsure if the service is trustworthy and safe for their children. We wanted to include live tracking of trips to allow parents to monitor where their child is at all times when using LyftKids. We discussed live tracking used in similar competitors like Lyft and Uber, and agreed that mobile devices are simply not accurate enough when working with a live visual map to pinpoint exact locations. For that reason, we wanted to include the use of an additional GPS device that could be purchased; this device would either support the LyftKids application on its own or work in tandem with the mobile device application to relay more accurate and reliable live tracking to parents. The software itself would be nearly identical to our final design proposal, but with certain elements changed to work with the partner device.

Trade-Offs

Cost is the number one trade-off if this design were to become a reality, as parents would be required to purchase hardware specifically made for this service. From both a development and consumer perspective, having to maintain, update, and ultimately upgrade the software and hardware for such a device is very impractical. Whether or not the device would be easy to learn and easy to use was another issue as not only parents, but also children would have to be comfortable interacting with the device.

Why It Was Not Right

Mobile devices are the norm. It is much better to implement the LyftKids service onto existing technology because it is cheaper, more accessible, more practical, and less risky than investing in building new software and hardware. We also felt that there were other ways we could ensure parents that the service is safe for their children to use that would be much more practical to implement.

Kid Carpool - Alternate Design 2

One of the goals we originally discussed was providing low-cost options to parents. This led to having LyftKids focus on being a carpooling service for children. Carpooling would naturally be the cheaper option offered to children. Parents would be presented with nearby parents or other drivers who are planning to drop off at a certain location at a certain time and be able to request

spots for their children. The service would also offer the option to request for normal rides, but these would be more of an expensive, luxury option. This service provides the general benefits of carpooling: less traffic and environmentally-friendly, while appealing to a variety of different economic situations.

Trade-Offs

The carpool option has a number of disadvantages. Rides would not be personal, and parents will not be able to choose or see the other children who are in the car, which may raise safety concerns for parents. It also limits the practical use of the app, at least in terms of being low-cost, as it works great for school trips, but not other trips like going to the mall or a friend's house. Scheduling a carpool can be more time-consuming and difficult than scheduling a single ride with single start and stop locations. Furthermore, it creates the problem of some users having to wait longer than others to get picked up, which may violate our fifteen minute wait time for a ride.

Why It Was Not Right

While the carpool service has its advantages, we felt that it did not reflect what LyftKids aims to offer. This design is results in a niche service that may work excellently for helping parents and kids deal with daily school trips, but does not translate as well to other areas. Certain design decisions, like not requiring children to have a mobile device, barred us from implementing very convenient and practical features that solved some of the most important issues with LyftKids.