



Beaton / Butler / Carder / Greeson

1 Definition

Ketch is a mobile app designed to facilitate transactions between two local parties for trading goods and services. It will utilize geolocation to create a local market derived from nearby users and allow them to buy and sell goods in a local marketplace. The program will emphasize security foremost, forcing the users to validate their identity, provide a secure transaction system, user reviews, and a safe meeting space for the actual transaction. The end result will be a more secure, safer way to buy and sell goods with far less fraudulent transactions occurring to the users.

Ketch's main goal will be to provide a safer way to buy and sell goods locally without having to carry large amounts of cash, provide a receipt of transactions and a rating system for accountability. It seeks to expand and improve on the basic formality of services like Craigslist and OfferUp and become the go-to place for local transactions.

2 Project Requirements

2.1 Primary

2.1.1 Functional

- Accept or deny current item offers.
- Message between user and buyer.
- Show items based upon location.
- Customer support functionality.
- Edit account information.
- Feedback/support system.
- Create and sell an item.
- Upload Pictures.

2.1.2 User Interface

- Item listing (where the seller points).
- Facebook login page.
- Account information.
- Individual item view.
- Loading screen.

- Favorites page.
- Chat system.
- Dashboard.

2.1.3 Usability

- Will follow general iOS design philosophy.
- No unnecessary functionality.
- Efficient and intuitive design.
- Simple to understand.

2.1.4 Performance

- Server must be able to handle consistent requests from many users.
- Database designed in an efficient manner.
- Mobile app must be lightweight.

2.1.5 System Interface

- Database talks to the mobile application and the website.

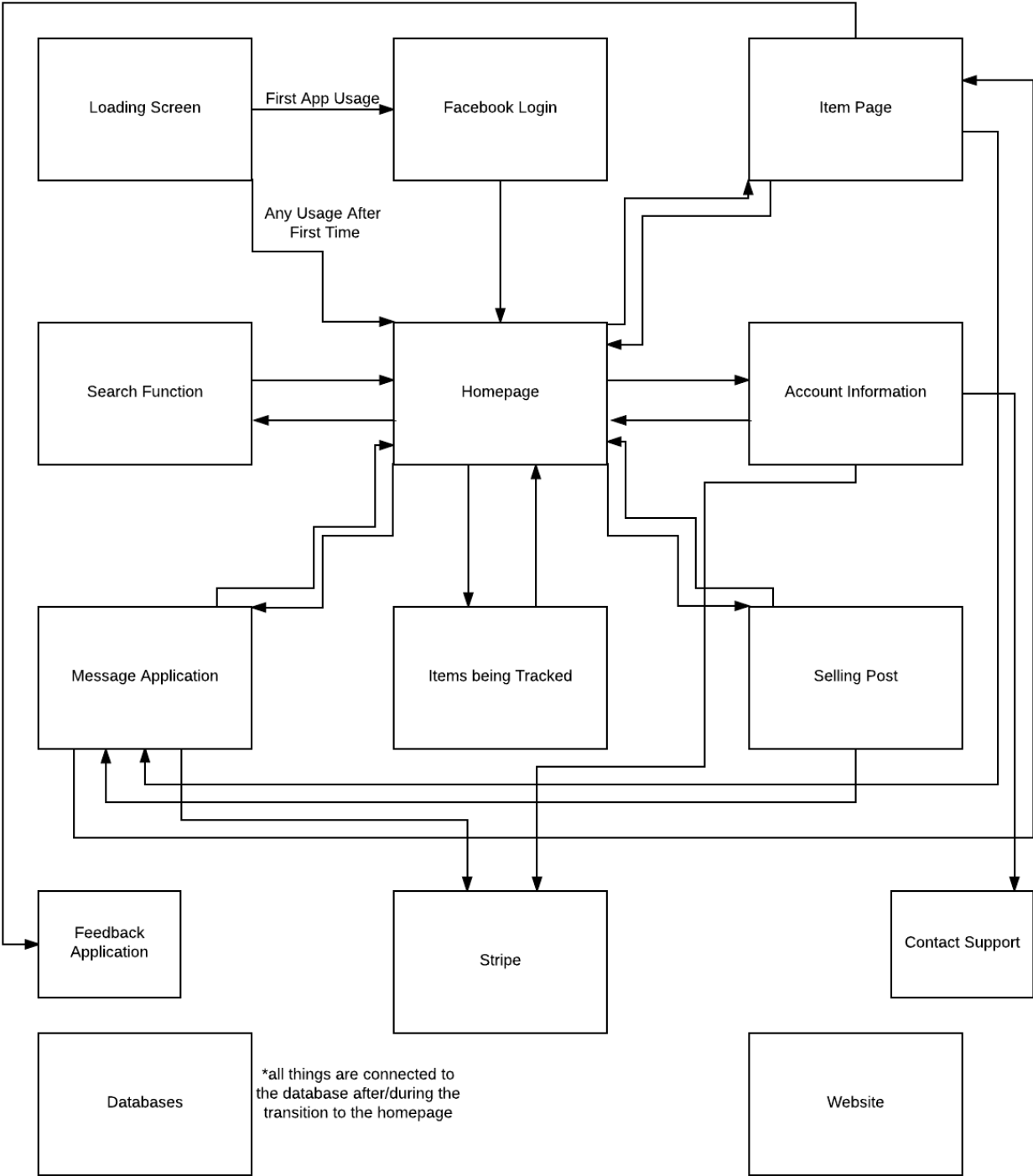
2.1.6 Security

- Payment system is done through Stripe.
- Facebook login to validate identities.
- Chat system is all done in-app.
- Only first names are given.
- User rating/report system.

2.2 Secondary

- Highly functional website.
- Geolocation for safe areas to meet.
- Be able to search specific categories.
- Be able to change view (items per page).
- Customize UI to user's liking.

3 System Model



4 Subsystems

Loading Screen: The loading screen will be a basic page that will be locally downloaded to the storage device. It will be immediately loaded upon the app opening and will remain on the screen until all the data can be retrieved from the server and be uploaded onto the homepage. Upon first usage, It will direct the user into the Facebook Login page. Anytime other than the first, it will load directly into the homepage.

Facebook Login: The facebook login is a function that will be added into the application for first time users. This applications use for this function is to create a secure environment for all the users, and to be able to link each user with a real person to avoid fake robotic accounts. This will help make users feel more comfortable with their transactions knowing that the person on the other side of the sell has to be a real person.

Homepage: The homepage is the basic center of our app that will connect to all other parts of the app. With this being the center, Every subpage of this center will have a link that goes back to the homepage. The homepage will consist of a search function, account information link, items being tracked link, a selling post link, item page connection, and message application link. It will at all times contain a 2 x 2 grid of items that you can choose from and click on. This will also have a exit out of app link.

Item Page: The item page can be reached by one of two ways. First it can be reached by clicking on an item from the homepage. The second will be by clicking the item description in the message application. It will have a picture or two of the item, as well as a description of the item and the first name of the seller. At the bottom of the page it will have a link to where you can message the seller about the product. It will also contain a link back to the homepage. This will also lead to a Feedback page, where you can give information on the seller anonymously.

Feedback Function: The feedback function allows buyers and sellers to tell others how the transaction went, if there was any kind of issue with the sale, or any other pertinent information that other users (or the Ketch team) may find relevant.

Search Function: The search function is just a basic search function that will not filter out items, but will try to find items based of off keywords in each post description.

Account Information: The account information will be a place that holds your email address, your zip code, a contact customer support feature and a items tracking list.

Contact Support: This is reached from the Account information page and it will open up a chat box on which you can contact customer support about any bug or bad transaction you have had that needs to be looked into.

Message Application: The message application will be a function that is very basic and will allow users to only send text messages and pictures to each other. The main meaning of this being in the application is that it allows for contact between the buyer and seller. Each party can talk to each other and send updated pictures on the item as well as a closer look at the item in question.

This will consist of two pages. The message homepage which will contain all of your messages with people and then the other page will be a page of the actual conversation between the buyer and seller. A link to this will be on the homepage. At the bottom of each individual message page, it will have a link to help find a safe place for the meeting to take place.

For the Buyer: When you enter an item page, it will say messenger seller at the bottom of the page. When that link is clicked, it will link to your homepage of your messages which will list a picture along with the item description of each product. You click that product, then it takes you to a page where you can send a text to the seller.

For the Seller: When the seller gets a message, A notification will pop up the left hand corner of the selling post function. When they go to the selling post function, it they will click on the item with the notification and it will go to a message homepage that shows all the conversations he has about that item. He can then click on one of the conversations to message back or read the previous conversations he has had with a person.

Items Being Tracked: This function will display a page which details items that the user may want to keep an eye on. It works as a “favorites list” or a “watch list”.

Selling Post: Every item posted will have an individual page with product images, a product description, a price, and any other relevant information that the seller wants to put in there.

Stripe: Stripe will be used as a payment processor for our application to avoid meeting up with people while carrying a lot of cash. Once a price is agreed upon, the sale will go through Stripe. Both buyer and seller will agree on the price which will be finalized in our database. Before the payment gets sent to Stripe, both buyer and seller will have to select yes or no to the payment. We encourage this to be done in person before either person leaves the site of the exchange.

For the Seller: The seller will be able to request the payment through the messaging cen-

ter. At the bottom of the screen there will be a button used to request the payment from the buyer. This will alert the buyer to confirm the sale.

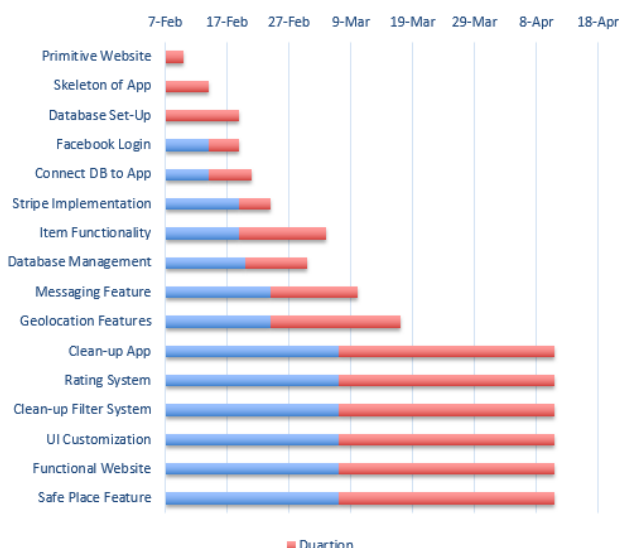
Database: The database will store all information such as individual user data, sales listings, user favorites list and chat histories. Every page in our application will be connected to our database in some way. Whether it's pulling a item listing with the picture, description, price, and other features, or displaying the user's account information, the database will be used.

Basic Website: Our basic website will serve to promote our application and show basic information that the user may want to know. Our primary focus will be in the mobile application, however we will embellish the website with more features if time allows.

5 Timeline

Primary Tasks	Start Date	Duration (hrs)	End Date
Primitive Website	7-Feb	3	10-Feb
Skeleton of App	7-Feb	7	14-Feb
Database Set-Up	7-Feb	12	19-Feb
Facebook Login	14-Feb	5	19-Feb
Connect DB to App	14-Feb	7	21-Feb
Stripe Implementation	19-Feb	5	24-Feb
Item Functionality	19-Feb	14	5-Mar
Database Management	20-Feb	10	2-Mar
Messaging Feature	24-Feb	14	7-Mar
Geolocation Features	24-Feb	21	17-Mar
Clean-up App	7-Mar	35	11-Apr
Rating System	7-Mar	35	11-Apr
Clean-up Filter System	7-Mar	35	11-Apr
UI Customization	7-Mar	35	11-Apr
Functional Website	7-Mar	35	11-Apr
Safe Place Feature	7-Mar	35	11-Apr

Gantt Chart - Ketch



6 Alternative Models

6.1 iOS vs. Android

6.1.1 iOS

Pros:

- We have access to iOS devices which are connected to a mobile network.
- Xcode is a very intuitive and easy to use development environment.

Cons:

- iOS has to be developed on a mac environment. Only two of us have access to a personal mac computer.
- Requires a developer license to upload to the app store.

6.1.2 Android

Pros:

- Android can be developed on both Mac iOS and Windows PCs
- More versatile development environment.
- Uploading to the Google Play store does not require a developer license.

Cons:

- Android Studio is not as intuitive.
- We only have access to a few Android devices that are not activated.

6.2 Mobile Application vs. Web Application

6.2.1 Mobile

Pros:

- The application is best suited for on the go usage.
- Users can do card payments when they reach the meetup location.

Cons:

- Users must be connected to WiFi or a mobile network.

6.2.2 Web

Pros:

- A web-based environment may be easier for users who sell lots of items.

Cons:

- Harder to geolocate due to VPNs, proxies, etc. Also need users permission.
- Will not be developed natively for mobile devices, which may cause problems when users access the site using them.
- Harder to catch on in web form. Mobile is more popular.

6.3 Facebook login system vs. Local login

6.3.1 Facebook

Pros:

- Users are verified through Facebook.
- Increases accountability.
- Less information stored in our database.

Cons:

- Some users may not have a Facebook.
- Some users may not feel comfortable letting Facebook have access to their information.

6.3.2 Local

Pros:

- We don't have to rely on the Facebook API to retrieve information.

Cons:

- We cannot verify that the user is real.

6.4 Stripe vs. Venmo

6.4.1 Stripe

Pros:

- Students get no service charge for the first \$1000 worth of transactions.
- Streamlined usability.

Cons:

- Security measurements do not seem as robust.

6.4.2 Venmo

Pros:

- Verifies the user's identity, checking against government watch-lists.

Cons:

- Requires users to have a Venmo account.

6.5 Using user's real names vs. user-names

6.5.1 Real Names

Pros:

- Users would be less likely to scam one another because there is more accountability.

Cons:

- Knowing someone's name may violate user privacy.

6.5.2 Usernames

Pros:

- It would introduce more anonymity in the application. Users would only know a pseudonym.

Cons:

- Security would be altered from one perspective to another. It would be more secure in the sense that individual users names are not being shared, however it is less secure because there is less accountability when not sharing real names between the users.

7 Group Roles

- **Connor** - UI/UX, Search Functionality
- **Sawyer** - Geo Tracking, Documentation
- **Keaton** - Database integration, UI
- **Patrick** - Facebook API, Stripe API, Lead programmer