

Rensselaer Polytechnic Marketplace

Aidan Pechet, Alex Cote, Anish Patel, Na'Sir Miller, Peter Simone

Professor Callahan

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Project Summary

Rensselaer Polytechnic Marketplace - or RPM for short - is a platform on which users can buy and sell goods, designed specifically with the needs of Rensselaer Polytechnic Institute in mind.

Rensselaer Polytechnic Marketplace is a platform based on similar applications such as Facebook Marketplace and eBay. It will have features such as item categories, listing searches, and “exchange locations” - a feature that will allow users to agree on a location on campus to exchange the item.

In order to create a product which encourages sustainability, Rensselaer Polytechnic Marketplace will feature a “giveaway” section, where items users intend to give away for free are displayed in the spotlight. Upon being added to the listing, free items will enter a raffle period - where users can indicate they are interested in the item, entering into the raffle, with users who enter earlier into the raffle being more likely to be chosen. At the end of the raffle period, if no users have shown interest, the item will be given away on a first-come-first serve basis, as with every other item. This raffle system is intended to create an environment of fairness by accommodating for those who do not have time to constantly babysit the listings, while allowing those who can to benefit as well.



Stakeholder Analysis

The first step to analyzing the benefits to stakeholders is to figure out who the stakeholders actually are. The primary stakeholder groups are RPI students, RPI staff such as educators, the parents of RPI students and sustainability groups.

RPI Students

RPI students are the primary target audience for our application. They benefit by gaining an outlet where they can sell goods, buy goods, or receive free items that were no longer needed by their previous owners. This saves them the trouble of needing to wait for deliveries from standard online ordering platforms, and in some cases even avoid spending money. Not having to worry as much about getting items that a student needs also decreases the stress levels they feel. Additionally, students are able to save space in their dorms and other storage spaces.

RPI Staff

RPI staff members, primarily educators, also benefit from our application - though in a less direct manner. By having students benefit, being less stressed and thus more prepared and more able to focus in class, RPI educators will have an easier time teaching.

RPI Parents



By creating a platform where their child can more easily get what they need, stress is ALSO alleviated from the parents - who don't need to worry as much about little things. Depending on the quantity of free offers, it may also mean parents can provide their children with less direct financial support, whether that be getting a minifridge or a storage unit.

Sustainability Groups

By encouraging the recycling and passing around of used goods, our application directly furthers the cause that these groups work towards.



Technical Summary

Technologies to be used

In order to create RPM, we will utilize the AMP stack along with some complementary technologies. Firstly, Apache, as the web server to give potential stakeholders access to our platform. In regards to storage, MariaDB will be used to store all user and listing data ranging from an item to username. Moreover, to capitalize on Apache and MariaDB dynamism, PHP will allow us to pull data from our database and generally run our application in an effective and efficient manner. Additionally, HTML and CSS will be used to create the application itself and make it visually compelling while JavaScript will give the application intractability and functionality.

Functional Requirements

Behind the scenes, RPM will have a plethora of tasks to create a usable product. When a user arrives on the page they should see listings with varying prices. However, in order to promote and commit to our goal of a sustainable future, we will implement a “recommender” system to prioritize free items. Our method for “recommending” a product will be tracking the amount of clicks a certain listing is getting, with the more clicks leading to the listing being “pushed”, as well as the recency of the listing. In order to track the clicks and recency, we will have fields in our database for the listings clicks and posting date. The database will contain at minimum two tables, one for users and the other for listings. A user table will contain a RPI email, password (barring security risk), given location and past/current listings. The listing table on the other hand will



contain fields relating to properties such as item name, color, price, description, posting date, owner, clicks/popularity that will factor in how often it is clicked and if it is free.

Furthermore, if a user wants to store their history and save listings for later, they can login or signup. If a user is logging in, they will simply enter their RPI email and RPI password using Duo. However, if they would like to sign up they will create a password, add their RPI email, and provide a general location.

When a user would like to buy an item, they can contact the seller and discuss whatever may be necessary, like a meetup location. Our application, when purchasing, suggests RPI's most logical meetup spaces like the Union or '86 Field, as well as giving the user's the ability to "find a location." For the aforementioned feature, we will create or possibly research an algorithm to find the midpoint of the two user's current locations that is on campus and again, reasonable. We will also utilize Google Maps to better pinpoint locations and give the user a visual of a location. Another option, although still being discussed among the team, may be payment through the application. If we were to have the required time and capabilities, we may use one of Stripe or Plaid to provide safe and real payment. However, in order to maintain a baseline of web security, this may not be done.

Users will also be able to navigate and search for items directly to find whatever they may want, which will be done through comparing the query with properties of listings in our database. Equally important, we will send emails/notifications to the users to maintain a conflictless experience.



Non-Functional Requirements

Our application must be safe and responsive. As a result, we will be collaborating with RPI to allow for user authentication through RPI-Duo information. Additionally, as previously mentioned, the website must be responsive to user input like searches, clicks and even the creation and deletion of listings.



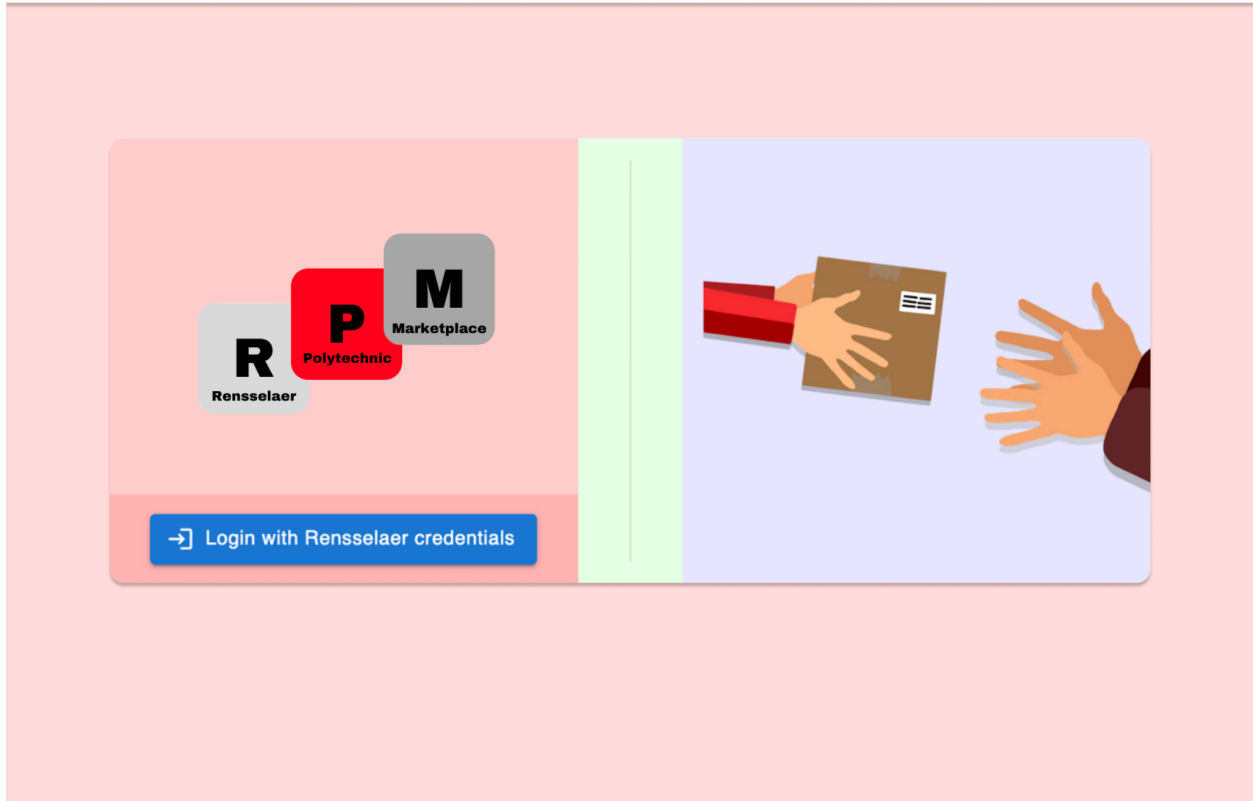
Wireframes

RPM

Listings

Post a Listing

About Us





RPM

Listings

Post a Listing

About Us

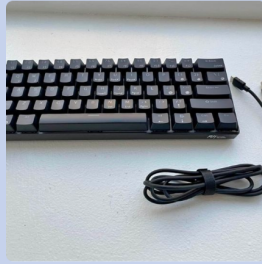
Anish Patel

Featured Listings



Free

Easy to use microwave - top condition!



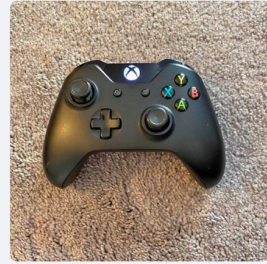
\$15

Wireless Gaming Mechanical Keyboard



\$40

BenQ 24 Inch IPS Monitor | 1080P



\$25

Xbox One Controller Wireless



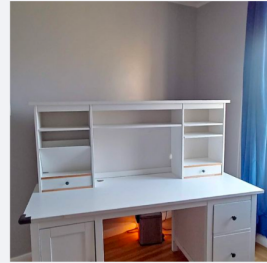
\$5



\$6



\$100



\$30



RPM

Listings

Post a Listing

About Us

Anish Patel

Post a Listing

Name

Required

Price

\$0

Description

This is the description of my item.


Preview

Information and Database Architecture

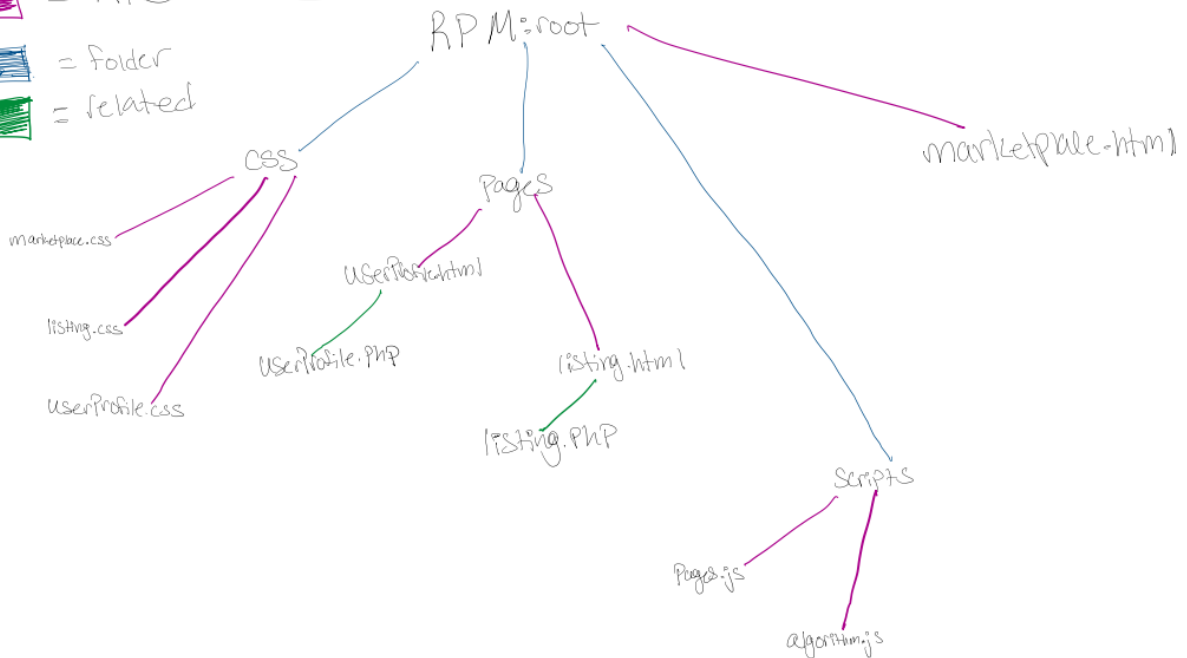
key

 = file

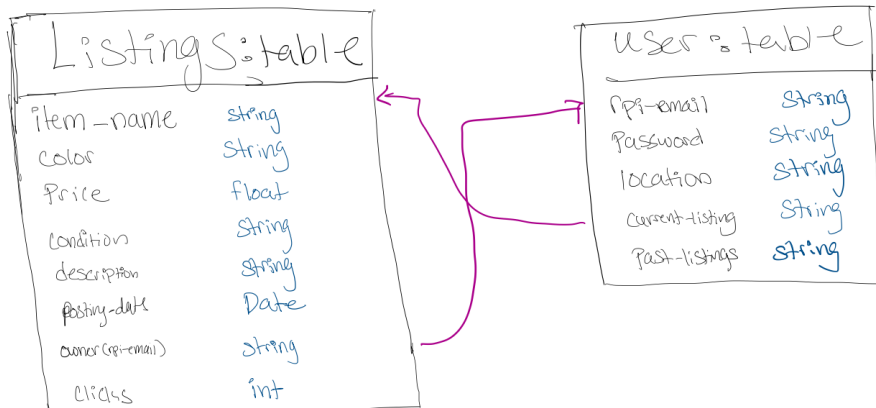
 = folder

 = related

Information Architecture



Database architecture



 = relation



Project Schedule

September 20th - October 16th

From September 20th to October 16th we will design the front end of our website, and create an architecture.

- Following our group-defined standards
 - naming conventions, etc

Deadline 1 - Midterm Presentation - October 17th

By October 17th, we will have a complete draft of our front end.

- With the UI/UX properly displayed and formatted
- Working Functionality
 - Aside from backend features like the database

October 18th - November 1st

From October 18th to November 1st we will develop a robust database and a system for modifying it.

- We will follow our developing database architecture to complete this task



November 2nd - December 3rd

From November 2nd to December 3rd we will fully integrate our database into the front end, allowing users to post and administrators to curate existing posts.

- Also will create personas, dummy data, and tend to other logistics

Deadline 2 - Final Presentation - December 4th

By December 4th, we will have a fully functional rendition of our website for the presentation.



Conclusion

The Rensselaer Polytechnic Marketplace is committed to fostering a community led all-in-one experience. We want to provide our users with the comfortability and ease of access to their peers and their items. In order to act upon the RPI motto, “Why not change the world?”, we will be encouraging green behavior on our platform and on campus.

With all that being said, *why not buy and sell?*