

Aparto

THE ULTIMATE APARTMENT RESOURCE

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32%

of apartment building owners are looking to improve customer service (Jan 2011) ¹

58%

of apartment building owners worry about timely rent payment (Sept 2010) ¹

53%

of apartment seekers are using the internet as their primary source of information during apartment hunting (Sept 2010) ¹

¹ Source: J Turner Research, jturnerresearch.com

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Aparto is a property management mobile and web service designed to facilitate transparent and efficient communication between apartment building managers and tenants.

Additionally, it is a platform for tenants to provide consistent customer feedback to managers and apartment seekers in order to help the apartment hunting process.

Stakeholders

Aparto is a service that equips five key stakeholders with new abilities.

- **Tenants:** to share their voice and easily provide feedback to their management and apartment seekers on a monthly basis. Aparto allows them to pay rent, file maintenance requests, and see the status of their payments and requests in one easy location.
- **Apartment seekers:** to get genuine, up-to-date reviews from real tenants.
- **Building managers:** to ensure transparent and effective management. Get greater insight from their tenants and ultimately improve their customer service.
- **Real estate company owners:** to stay more in touch with their properties by seeing the tenants' perspectives.
- **Maintenance workers:** to get real-time and accurate information about their responsibilities.

Competitive Analysis & Market Positioning

To study the existing market scenario and to see how people are currently solving the problem of management to tenant relations, it is important to look closely into the property management software space. Players in this market can be divided into two categories based on features they provide.

The **first type** is called Property Management Software. The features this type of software provides mainly includes Purchasing Control, Budgeting Management, Accounting, Document Management, Central Reporting, etc. This kind of software focus on management issues inside property companies, but tenants have no access to this software. RealPage, Inc. and Yardi Systems, Inc. dominate this market.

- **RealPage, Inc.** is a leading provider of on demand products and services to apartment communities across the United States. Their software solutions include a number of value-added services that provide complementary sales and marketing, asset optimization, risk mitigation, billing and utility management and spend management capabilities.
- **Yardi Systems** provides property and asset management software for clients in the real estate industry. The company's software includes tools for budgeting and forecasting, construction, scheduling, and maintenance, with specific offerings geared towards management of multifamily rental properties, commercial real estate, public housing, and senior housing.

The **second type** of software/service is more diversified, and tend to try to enhance the interaction between the building management company and tenants. Some important trends are as follows:

- **E-Payment Solutions**
Example: <http://www.rentpayment.com>
This service is very mature, and is even already available on the phones. But many property company refused to use it considering security issue.
- **Apartment Rating & Review Website**
Example: <http://www.apartmentratings.com>
Apartmentratings.com is a channel for tenants providing feedback to the public, specifically geared towards apartment seekers. But people have the tendency to only provide negative feedback, therefore apartment management seems to ignore this as a source of feedback towards improvement.
- **Customer Relationship Management (CRM) Tools**
Example: <https://www.chatter.com/>
Traditionally CRM tools are more like user information management system. They keep track of interactions with tenants, including emails, documents, jobs, faxes, scheduling, and more. Salesforce Chatter enhanced the interaction, but it is a general interaction service focusing on collaborative work.

Aparto is a new service belongs to the second type. It builds efficient and transparent communication channel between managers and tenants, taking full advantage of mobile technology.

The Need

Lack of seamless communication channel for managers to deal with maintenance

There is no existing service that caters to this need. The maintenance work is generally manually handled by the apartment managers either through phone or emails who then forward it to the maintenance crew. This is a time consuming process and is prone to errors and miscommunication.

- **What Aparto does to solve this?**

Aparto introduces a seamless way which makes the managers job minimalistic and automatically connects the tenants with the maintenance workers. It also ensures efficiency and speedy maintenance by proving real time updates and information to the maintenance workers.

Lack of transparency about state of buildings between the owner and the manager

The owners rely on the managers to run the apartments efficiently. Although there exists various tools like Yardi and RealPage which try to track the apartment's well-being by giving information about rent payments and other issues, there is a need for the owner to connect with the tenants and understand their problems and experiences. Also the owner has no direct feedback on the manager and the maintenance people's progress.

- **What Aparto does to solve this?**

Aparto introduces a transparent way of getting reviews from the tenants and making them accessible to different tiers in the organization. Since the reviews are more reliable than the past predecessors and at a centralized location, the owner can keep a track on how happy or unhappy the tenants is. Also since the manager is also reviewed periodically by the tenants, it ensures better understanding on the part of the owner regarding the manager's work.

Lack of Conformity in Ratings Systems

Ratings and reviews of apartments stand to help both potential tenants and building management. A few building managers interviewed said that tenant reviews are highly unreliable and that often disgruntled tenants are more likely to be motivated to leave reviews. In general apartment review sites vary widely in their ratings systems and reading through a number of comments are required. One building management office employee commented: "Reviews in almost all cases are a detriment. They clutter the Internet, do not provide REAL information, and tend to be written by people who have issues.

Word of mouth, on the other hand is one of the most important ways we attract new customers.”

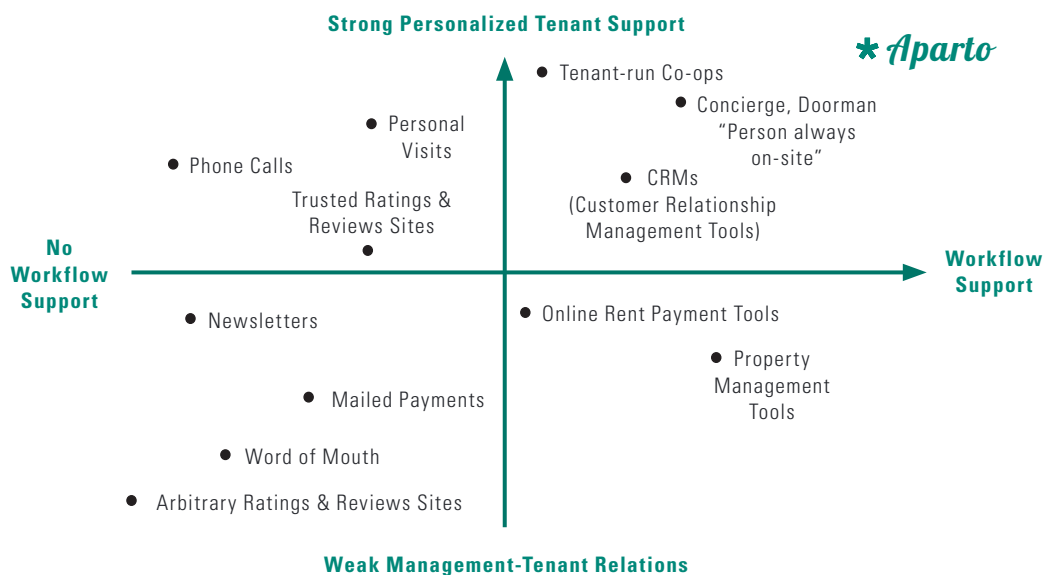
The lack of conformity in review sites and rating systems can be problematic for management because they have no organized way to respond or improve based on trusted feedback or be judged more objectively in the face of the dissatisfied few. One survey respondent said, “it is difficult when residents do not take the resources that are available (ask the management re: problems, questions, concerns). It is also hard to respond to negative comments that are posted on public forums.”

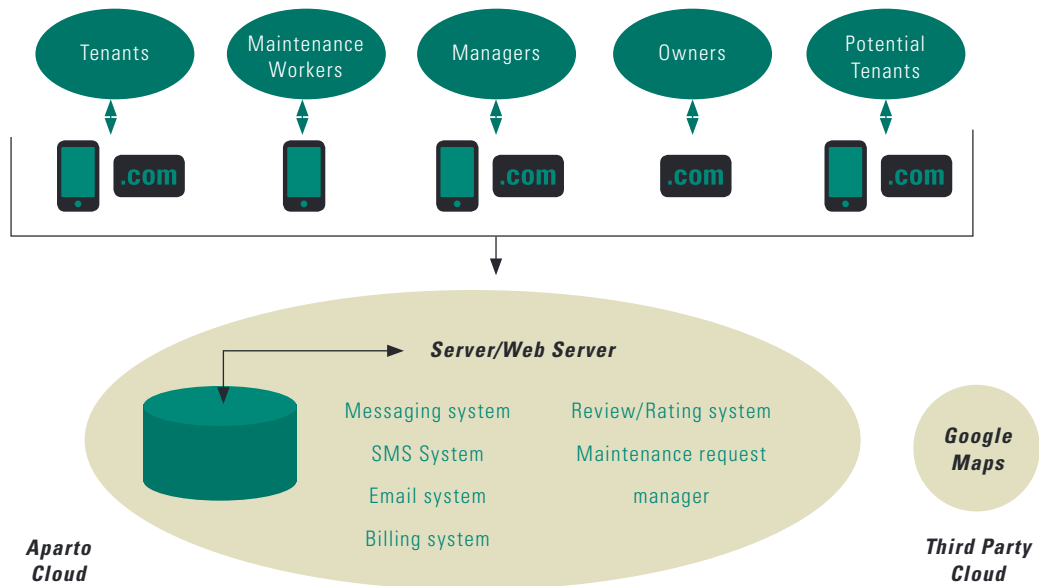
What Aparto does to solve this?

For Aparto, motivating the improvement of properties and enabling tenants to have a more proactive role in defining where they live would be a clear benefit of a more standardized rating system or review system that increases transparency and compliance.

Moreover, it highlights the fact that service providers are required to respond to customers who become not only more proactive in maintaining and reporting on the quality of their services but also more organized. A key aspect of the co-creation of value in the online sphere is that for customer and consumer feedback to be powerful it must be organized and consolidated well to be trusted, referenced and used as a motivator of change.

For Aparto, this current lack of organization in reviews and ratings systems of leased living spaces is a prime opportunity gap that can be effectively filled with good design and strategic marketing.





Block Diagram

Aparto is going to be developed under the traditional client-server architecture which is versatile, flexible and mature. It is modular in structure and relies on messaging services for communication between components.

On the client side, there are five types of pre-defined users. The tenants access Aparto through both the mobile application and web browser, and the most interactive features are implemented on the phone. Maintenance workers are assisted by the Aparto mobile client. Managers use both mobile and web browser to track apartment processes. Owners check on managers through web browser. Apartment seekers can review apartment reviews through both Aparto mobile client, which is location-aware, and a web browser.

The Aparto server is made up of seven sub-systems: a messaging system, SMS system, e-mail system, billing system, review/rating system, maintenance request manager system and a records manager system. These sub-systems are organized to interact with both database and clients. Google Maps will be used as third party add-on.

Manpower

Three types of developers with different skill sets will be used to build Aparto: a front-end developer, a back-end developer, and a smartphone application developer. The front-end developer is responsible for the view layer to design and provide excellent user experience. The back-end developer is responsible for model and controller layers to implement business logic correctly with high performance. The smartphone application developer takes charge of building the mobile applications on several different mobile platforms (iOS, Android, and Windows Phone 7).

Software and Hardware

Aparto will use the LAMP software bundle as a development environment and tool set. LAMP is a solution stack of free, open-source software which includes Linux, Apache HTTP Server, MySQL and Perl/PHP/Python. Because all this software is free, it will save Aparto's development cost. More importantly, LAMP has been adopted by many companies successfully, and this proves its capability.

Aparto is hosted in the cloud using Amazon Web Service, which is a reliable, scalable, and inexpensive computing platform. Amazon Elastic Compute Cloud (Amazon EC2) provides resizable compute capacity in the cloud, therefore Aparto will pay only for what it uses, with no minimum fee. EC2 instance can be configured as a standalone LAMP stack.

Development Plan

Aparto has a three-phase development plan.

The first phase is the most important and time-consuming. This phase focuses on back-end development, and at the same time, developing the front-end clients with partial functionalities for tenants, maintenance workers, managers, and owners. This phase will include development for only one mobile platform.

In the second phase, the client web portal for apartment seekers will be added. Pre-released clients will be updated with more features.

In the third phase, compatibility and multi-platforms will be the main subject. Aparto will get support on all three aforementioned smartphone platforms.

The time to development Aparto is around 25 weeks, which is instrumental in estimating the cost of development. See the Appendix for more detail on estimated time for development.

The following is a breakdown of the cost of development and the setup cost which are one time costs and the the maintenance cost, the revenue and the profit per year. Also, this estimate is assuming a penetration of 100 apartment buildings with an average of 100 units per building.

Cost of Development

Aparto will initially need three developers and a user interface designer to develop the mobile and web components. For initial marketing, a sales person is necessary for the last half of the development phase.

To fulfill the need, hire a full-time developer and two contract developers for development. Also to design the interface, contract a user interface designer.

Full Time Developer	40 hrs	x 25 wks	x \$50/hr	= \$50,000
2 Contract Developers	40 hrs	x 25 wks	x \$40/hr x 2ppl	= \$80,000
Contract UI Designer	40 hrs	x 25 wks	x \$40/hr	= \$40,000
Sales Manager	40 hrs	x 11 wks	x \$25/hr	= \$11,000
Total Cost of Development				= \$171,000

Setup Cost

Aparto will need two servers to operate one of them being the backup. It will also need a database to store history of all the transactions that will occur via it.

Cost of Server	\$5,000
Cost of Amazon Database	\$1,000/year
Total Setup Cost	\$6,000

Maintenance Cost

Annually after first year

Aparto will need one full time developer to maintain the service and a sales manager to promote the service. It will also need annually rented web space. To ensure smooth online rent payment transactions, Aparto will need a merchant account.

Full Time Developer \$80,000

Full Time Sales Manager \$50,000

Cost of Amazon Database \$1,000

Maintenance of Merchant Account + Cost of Transactions (using paymyrent.net)

\$420 + \$6,000

Total Maintenance Cost **\$137,420**

Revenue

Aparto will be charging a monthly subscription cost per apartment unit (\$1/apartment unit) and a percentage of in the rent payment transactions (2% per transaction).

Assuming a penetration of 100 apartment buildings with an average 100 units,

Revenue from annual subscription

100 buildings x 100 units x 12 months x \$1/unit = **\$120,000**

Assuming only 25% of the subscribers pay online and average rent per apartment is \$800,

Revenue from rent payment

100 buildings x 100 units x 12 months x \$800 rent x 25% pay online x 2%/transaction = **\$480,000**

Profit

First Year:

Total Revenue	+ \$600,000
Total Expenditure	- \$313,420
Profit	= \$286,580

Second Year

Total Revenue	+ \$600,000
Total Expenditure	- \$137,420
Profit	= \$472,580

Assuming that the subscriptions will increase after the first year, Aparto will make **\$16,800** per new apartment building added to the network.

Product Opportunity Gap

From a **social** perspective, the current real estate seller's market smothers the power of the tenants. There is a urgent need to improve interactions between building management and tenants. Tenants need to see that their management is about serving them. There is also a need for truthful, up-to-date reviews online for apartments in one easy-to-reach location.

From a **technological** perspective, smart phones and web services are increasingly prevalent and integrated in the daily life of both the consumers and businesses. A way to improve the efficiency of management-tenant interactions was to extend the functionality of existing management software to directly reach tenants. This would make the system more transparent and secure.

From an **economic** perspective, building managers already pay for mediocre software that does this, so payment for this type of service would not be something new. Additionally, a subscription service provides monthly revenue.

Analyzing the above factors, there is a clear opportunity for a channel to facilitate transparent and effective communication between building managers and tenants, and provide a means of consistent customer feedback.

What are our users' needs?

Aparto is a tool for the tenants by the managers/owners. It is also an apartment searching tool that help prospective tenants to connect with the existing tenants.

- **Tenants:** need to connect with the management efficiently while being able to voice concerns and opinions. They also want efficient and speedy maintenance request processing. Being busy, they want a centralized portal for all their apartment related problems, issues and services.
- **Apartment seekers:** have a reliable source of information in a locality with genuine reviews and information. They also need updated contact information and availability for apartments.
- **Building managers:** efficient, quick and hassle-free way of managing apartments, and a minimum need to learn new technology.
- **Real estate company owners:** need to connect with the tenants and ensure their properties are being maintained properly by getting transparent feedback. They also want to monitor the quality of apartment building management.
- **Maintenance workers:** a quick and fast way of receiving their daily tasks so they can efficiently manage them. Also they want to be appreciated and noted for good and speedy maintenance work they perform and eventually given a raise.

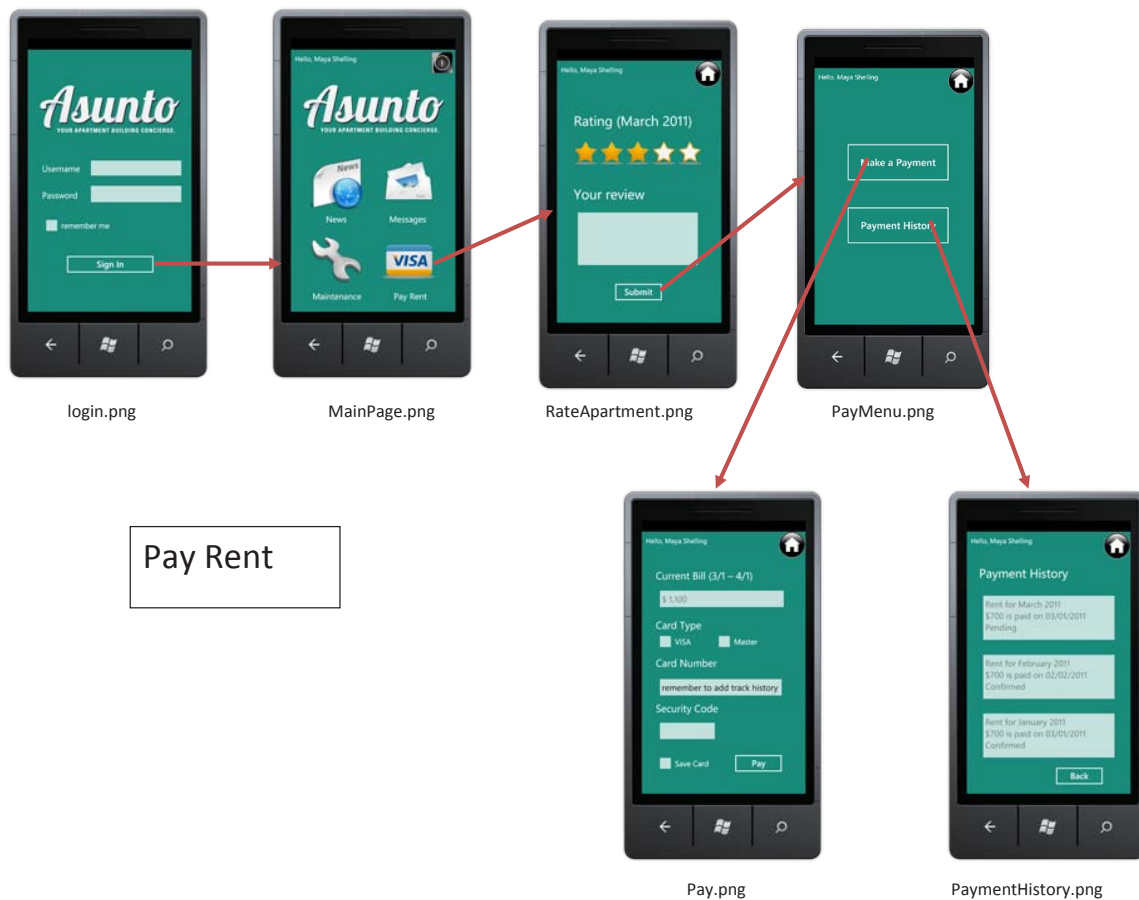
APPENDIX



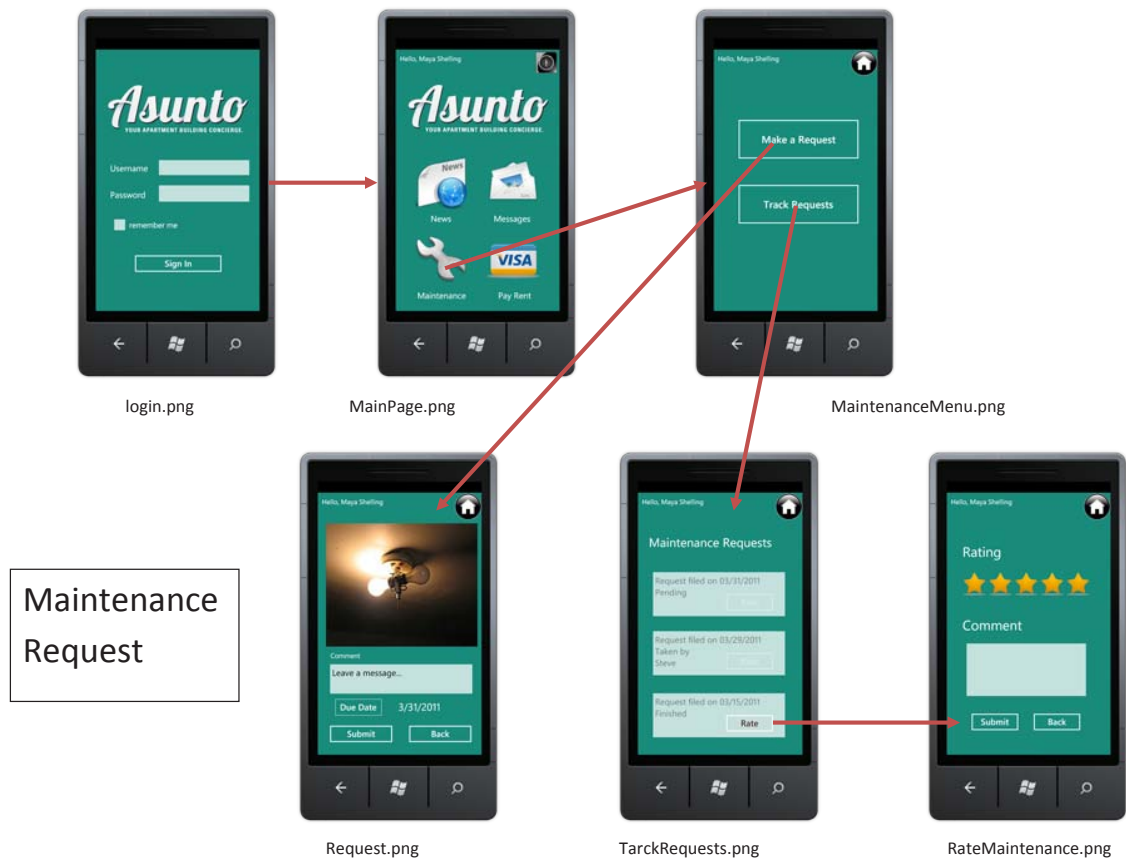
Development Hours from Points

	Use Case Lines	UUCW	Actor Weight	Subsystem
1. Sign up/Register with Aparto	6	10	2	
2. File a maintenance request	15	15	2	2
3. File a lost/found to (specific/all tenants)	5	10	1	
4. Pay Rent and Review Apartment	13	15	1	2
5. Tenant contacts management with some specific issues that can not be solved by provided features	5	10	2	
6. Apartment review on web	5	10	1	
7. Receive/ Accept/Takes Action/Updates on request	6	10	2	
8. Checks on his reviews/ tenant rating	3	5	1	
9. Manager tracks apartment process	5	10	1	
10. Intervention in case of an orphan maintenance request/ faulty rent payment	6	10	3	
11. Owner check on manager through review	4	10	1	
		115		21
Technical Complexity Factors	Weight	Assessment	Impact	
Distributed system	2	1	2	
Performance objectives	1	2	2	
End-user efficiency	2	3	6	
Complex processing	1	2	2	
Reusable code	1	0	0	
Easy to install	0.5	4	2	
Easy to use	0.5	3	1.5	
Portable	2	2	4	
Easy to change	2	4	8	
Concurrent use	1	3	3	
Security	2	4	8	
Access for third parties	1	0	0	
Training needs	1	2	2	
Total (TFactor)			40.5	
TCF			1.005	
Enviornmental Factors				Bad Signs
Familiar with the development process	1.5	2	3	0
Application experience	1	3	3	0
Object-oriented experience	1	2	2	0
Lead analyst capability	0.5	2	1	0
Motivation	2	1	2	1
Stable requirements	2	1	2	1
Part-time staff	-1	2	-2	0
Difficult programming language	-1	1	-1	0
Total (Efactor)			10	2
EF			1.1	
UCP			150.348	
Hours			3006.96	
Programmer-weeks			75.174	
Number of programmers	3			
Development time (weeks)			25.058	

Wireframes: Paying Rent on Mobile



Wireframes: Maintenance Request on Mobile



Wireframes: Website

The wireframe shows a search interface for Asunto. At the top left is the Asunto logo with the tagline "YOUR APARTMENT BUILDING CONCIERGE." To the right is a "Log in as a tenant -->" button. Below the logo is a search bar with the label "City, State, or ZIP:" and a text input field. To the right of this are two smaller input fields labeled "Beds:" and "Baths:". A "Search -->" button is positioned to the right of these fields. Below the search bar is a large rectangular area containing the text "Search for an apartment in your area!".

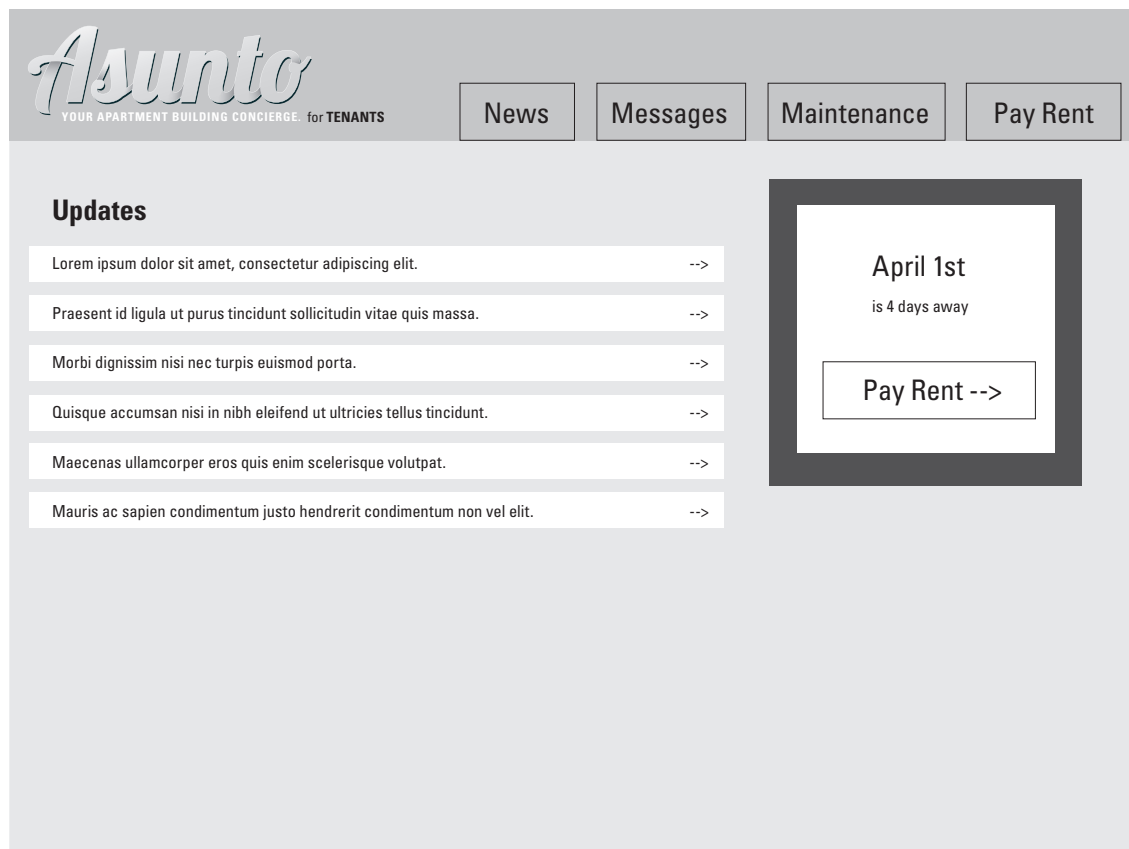
Asunto
YOUR APARTMENT BUILDING CONCIERGE.

Log in as a tenant -->

City, State, or ZIP: Beds: Baths: Search -->


Search for an apartment in your area!

Wireframes: Website



Wireframes: Website

Search for a new apartment



City, State, or ZIP:

Beds:

Baths:

Search -->

Apartment Building - \$400—800

Bed: studio—3 Squirrel Hill
Bath: 1

★★★★★ rating from **132 current tenants**

Apartment Building - \$340—\$685

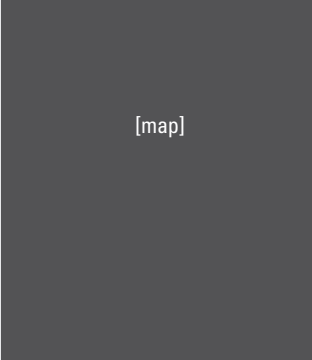
Bed: 1—2 Shadyside
Bath: 1


★★★★★ rating from **56 current tenants**

Apartment Building - \$500—\$1460

Bed: studio—3 North Oakland
Bath: 1—2.5

★★★★★ rating from **205 current tenants**






DESIGNING MOBILE SERVICES | APARTO

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Wireframes: Website

Search for a new apartment



City, State, or ZIP: Beds: Baths: Search -->

[<- back to search results](#)

Apartment Building - \$400—800

Bed: studio—3 Squirrel Hill
Bath: 1

★★★★★ rating from **132 current tenants**
HIGHLY RECOMMENDED

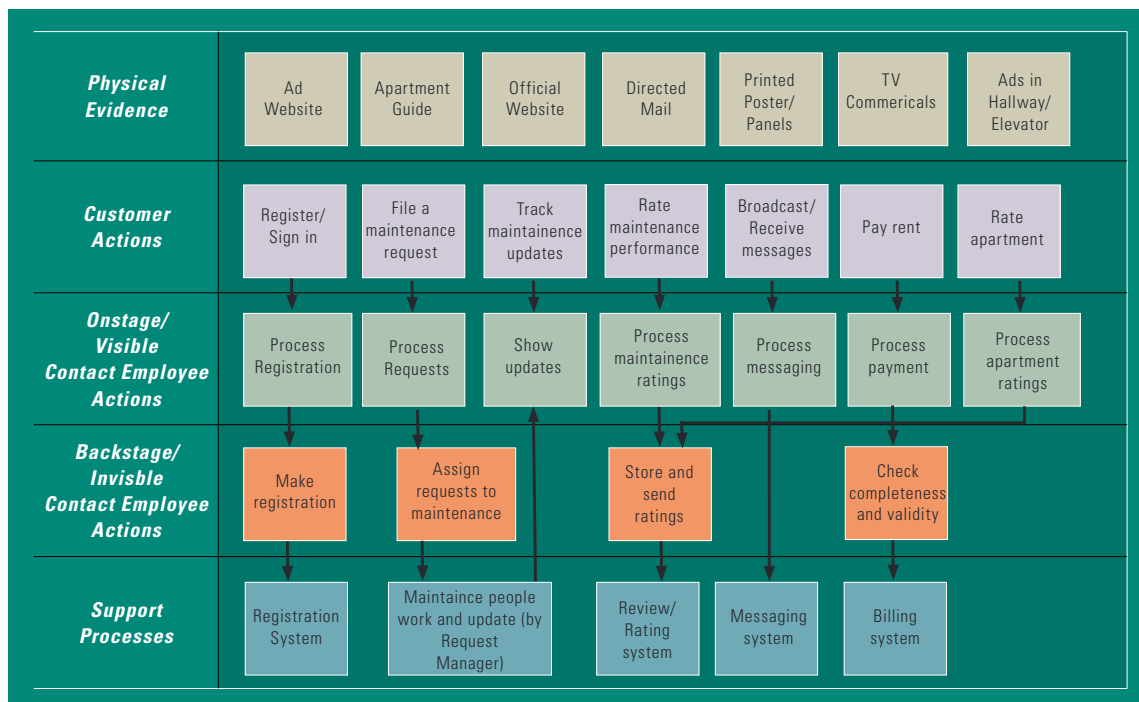
- ★★★★★ office staff —“Angela is sooo friendly! She is the best.” ... [more](#)
- ★★★★★ maintenance —“The maintenance staff is very fast and h” ... [more](#)
- ★★★★☆ safety —“The neighborhood around the building is a bit do” ... [more](#)
- ★★★★★ building condition —“All of the facilities are well-maint” ... [more](#)
- ★★★☆☆ noise —“I CAN HEAR MY NEIGHBORS WHISPERING!!!!!! A” ... [more](#)
- ★★★★☆ facilities —“The courtyard is really nice to hang out in. Lov” ... [more](#)

From: Maya
Date posted: 2/27/2011
In my 5 years in Pittsburgh, I have lived in a unit converted from a House, in an apart ... [more](#)

From: Alex
Date posted: 2/28/2011
I lived in a studio in this apartment for two years and loved it! ... [more](#)

[pics]

Service Blueprint - Customer: Tenants



Use Cases

Tenant

1. Sign up/Register with Aparto
2. File a maintenance request (Tenant rates maintenance work & Tenant reviews updates on his maintenance request)
3. File a lost/found to (specific/all tenants)
4. Pay Rent and Review Apartment
5. Tenant contacts management with some specific issues that cannot be solved by provided features

Apartment Seeker

6. Apartment Review on Web

Maintenance worker

7. Receive/ Accept/Takes Action/Updates on request

Manager

8. Checks on tenants review and rating
9. Manager tracks apartment process (reviewing payment/review of maintenance people/ review apartment ratings)
10. Intervention in case of an orphan maintenance request/ faulty rent payment

Owner

11. Owner check on manager through review

Tenant

1. Sign up/Register with Aparto

User		System		
Physical Evidence	Actions	Onstage	Backstage	Support
Goals and Motivations				
Want to use Aparto provided by the apartment	Find out the register website			
Preconditions				
The apartment is using Aparto				
Guarantees				
				Success: the apartment has been registered in Aparto service
Main Success Scenario				
	1. Click register	Go to the register page		
	2. Choose user's apartment, fill name, password, etc.	Stay on view	Store	
	3. Click submit	Go back to homepage	Send user register information to server	Make a new record in database
	4. Manager login and approve tenant request	Manager manage tenants page	Send decision to server	Update tenant record
Extensions				
	3a. Field empty/invalid	Stay at the same page		
	4a. Manager rejects request	Manager manage tenants page	Send decision to server	Update tenant record

2. File a maintenance request (Tenant rates maintenance work & Tenant reviews updates on his maintenance request)

User		System		
Physical Evidence	Actions	Onstage	Backstage	Support
Goals and Motivations				
Want to make a maintenance request	Decide to use Aparto			
Preconditions				
	Tenant has registered			Tenant profile database values
	Open and logs in Aparto			
Guarantees				
				Success: Maintenance workers accounts are active
				Minimal: At least one maintenance worker is available
Main Success Scenario				
	1. Click maintenance button	Camera is activated		
	2. Take a picture of the scene		Store	
	3. Click on Next	Go to next page allows user to fill comments and due date	Open Comment page	
	3. Write a comment	Stay on view	Store	
	4. Set the due day	Stay on view	Store	
	5. Send request	Return to main page	Check for completeness. Send to server.	Server makes a record of this request in the database, and passes it to proper maintenance worker.
	6. Check maintenance updates from news	Updates are published as news.	Pull updates from server periodically and push news to tenants	Check updates, and send to users
	7. Click rate button	Go to rate page		
	8. Select a score	Stay on view	Store, default score is 5 out of 5	
	9. Give a comment	Stay on view	Store, comment is not required	
	10. Submit ratings	Go back to main page	Send to server	Server updates the rate attribute
Extensions				
	2a. Not satisfied and go back to take another picture	Go to next page allows user to fill comments and due date		
	5a. Comment field is empty	Flag field and stay on view		
	5b. Due day is empty	Flag field and stay on view (The app will avoid user choosing the day before today)		
	6a. Check maintenance updates directly from maintenance track	Updates are also available from maintenance track		

3. File a lost/found to (specific/all tenants)

User		System		
Physical Evidence	Actions	Onstage	Backstage	Support
Goals and Motivations				
Lost something in public places of the apartment	Use Aparto broadcast feature to find it			
Preconditions				
	Tenant has registered			
	Open and logs in Aparto			
Guarantees				
				Success: most tenants in the apartment have registered Aparto service
				Minimal: the tenant filing the request should be using Aparto
Main Success Scenario				
	1. Click Message button	Go to the message page		
	2. Write a brief description of the thing lost	Stay on view	Store	
	3. Click send	Show success, and go back to main	Send request to server	Make a new record, and broadcast the request to other tenants
	4. Other tenant receive and open the message (contact the sender if he has some clue)	Go to the message page		
Extensions				
	2a. Field empty	Stay at the same page		

4. Pay Rent and Review Apartment

User		System		
Physical Evidence	Actions	Onstage	Backstage	Support
Goals and Motivations				
Due date for rent nearby/Wants to pay rent	Gets notification from Aparto telling rent is due	Notification pop up		Rent due date maintained
Preconditions				
	Tenant has registered			Tenant profile database values
	Specified Rent Cycle			
			Ability/Willingness to pay rent	
Guarantees				
				Success: Gets a rent payment notification if due date is specified
				Minimal: If no rent payment due date specified will be notified after a month of last payment
Main Success Scenario				
	1. Gets a rent payment due notification	Popup for due rent payment		
	2. Click on Pay Rent Now	Popup for Reviewing apartment		
	3. Rate the apartment	Rate the apartment on stars scale	Store	Database to store reviews
	4. Click on Submit	Go To rent Payment Portal	Open a secure channel for money transaction	HTTPS
	5. Fill in the rent form/payment information			HTTPS
	6. Click on Submit	Go To rent paid page	Complete the transaction.	Securely process the money transaction
Extensions				
	1a. Ignores Notification/Cancel		Note to remind next day	
	1b. Send a rent payment	Repeat the Main		

5. Tenant contacts management with some specific issues that cannot be solved by provided features

User		System		
Physical Evidence	Actions	Onstage	Backstage	Support
Goals and Motivations				
Want to contact manager	Contact the manager through Aparto			
Preconditions				
	Tenant has registered			
	Open and logs in Aparto			
Guarantees				
				Minimal: the tenant has registered Aparto
Main Success Scenario				
	1. Click contact manager button	Go to the contact manager page		
	2. Click call button to call manager directly or click message button to send a message			
	3. After click message button, the tenant writes a message and send it	Show success, and go back to main	Send request to server	Make a new record, and send it to manager
	4. Manager receives the message and reply (or take other necessary action)	Go to the message main page	Send reply to server	Update the record, and send the reply to tenant
Extensions				
	3a. Message field empty	Stay at the same page		

Apartment Seeker

6. Apartment Review on Web

User		System		
Physical Evidence	Actions	Onstage	Backstage	Support
Goals and Motivations				
Want to find a good apartment	Looks up Aparto			
Guarantees				
				Success: reviews are stored in database
				Minimal: pre-stored apartments descriptions are available
Main Success Scenario				
	1. Fill in apartment name or other keyword in the search bar		Store	
	2. Click search button to request	Go to the page that show all possible apartments	Send keywords to server	Search the database, retrieve apartment candidates list, and send back
	3. Choose a specific apartment	Go to the page of the apartment	Send primary key of the apartment to server	Retrieve necessary information of the apartment and send back
Extensions				
	2a. Search bar field empty	Stay at the same page		
	2b. Requested apartments do not exist in the website	Sorry, Your search "???" did not match any apartments	Send keywords to server	Search the database, no apartment matches, and return a empty list

Maintenance worker

7. Receive/ Accept/Takes Action/Updates on request

User		System		
Physical Evidence	Actions	Onstage	Backstage	Support
Goals and Motivations				
Maintenance workers want to facilitate their work	Their work are assisted with Aparto			
Preconditions				
	Maintenance worker has logged in			
Guarantees				
				Minimal: at least one maintenance worker is connected to the server
Main Success Scenario				
	1. Receive a new maintenance request	The request pop-up		
	2. Click accept or pass on	Stay on the request detail page	Send maintenance worker's decision to server	Update the record in database. If the decision is pass on, server sends the request to another worker
	3. If accepted, the worker will bring necessary equipment because he sees the picture tenant sent			
	4. After finish his work, he takes a picture and marks the task as "finished"	Go to the end request page	Send the picture and status to the server	Update the record in database, and send a notification to the tenant
	5. Get notification telling tenant gives feedback	Pop-up a notification	Retrieve record updates periodically, and pop-up notification when review available	Retrieve updates from server periodically
	6. Click on the notification to watch the detail	Go to review detail page	Render the review	

Manager

8. Checks on tenants review and rating

User		System		
Physical Evidence	Actions	Onstage	Backstage	Support
Goals and Motivations				
Want to know tenants' satisfaction	Get feedback from tenants			
Preconditions				
	Manager has logged in			
Guarantees				
				Success: reviews and rating are stored in database
Main Success Scenario				
	1. Click tenants review button	Go to tenants review page	Send the request to server	Search the database, retrieve apartment reviews of current month
	2. Choose a period of time or a specific month which the manager want to check	Show (partial) reviews and average rates of that period	Send the time parameter to server	Search the database, retrieve reviews of that particular period of time
	3. Click more button to view rating and review details	Go to the detail page	Send parameters to server	Retrieve review details of that period

9. Manager tracks apartment process (reviewing payment/review of maintenance people/ review apartment ratings)

Physical Evidence	User		System		
	Actions	Onstage	Backstage	Support	
Goals and Motivations					
Want to track apartment process					
Preconditions					
	Manager has logged in				
Guarantees					
					Success: records are stored in database
					Minimal: No records has been created
Main Success Scenario					
	1. Logged in to the dashboard	Stay on dashboard			
	2. Click payment button	Go to the payment review page (general statistics information)	Send request to server		Search the database, retrieve apartment payment information, calculate statistics information and send back
	3. Choose specific payments (based on time, tenant, etc) which the manager want to check	Go to the payment detail review page	Send request to server with parameters		Search the database, retrieve apartment payment information with specific requirements
	4. Click maintenance button	Go to the maintenance review page (general statistics information)	Send request to server		Search the database, retrieve maintenance information, calculate statistics information and send back
	5. Choose specific maintenance records (based on time, tenant, maintenance worker, etc) which the manager want to check	Go to the maintenance detail review page	Send request to server with parameters		Search the database, retrieve apartment maintenance information with specific requirements

10. Intervention in case of an orphan maintenance request/ faulty rent payment

User		System		
Physical Evidence	Actions	Onstage	Backstage	Support
Goals and Motivations				
Want to fix orphan maintenance request or faulty payment				
Preconditions				
	Manager has logged in			
Guarantees				
				Success: Gets an intense view of the reviews for maintenance and payment records
Main Success Scenario				
	1. Get the to-do list	Go to the page showing tasks to do	Send request to the server	Search the database, retrieve a list of orphan maintenance request and faulty rent payment records
	2. Click one task	Go to the detail of that task	Send task id to server	Search the database using task id, send back the task
	3. If the task is about an orphan maintenance request, manager call maintenance worker to fix	Stay on view		
	4. If the task is about a faulty rent payment, manager will click reset button to let tenant pay it again (or correct the payment)	Go to messaging page	Send the task id and update information to server	Reset or correct the payment record in database
	5. Manager sends a message to explain the problem to tenants	Return to to-do list	Send message to server	Server records the message and sends it to tenant
Extensions				
	5a. message field empty	Stay on view		

Owner

11. Owner check on manager through review

User		System		
Physical Evidence	Actions	Onstage	Backstage	Support
Goals and Motivations				
Wants to make sure the apartments are getting managed fine.				
Preconditions				
Apartment manager using Aparto	Web site access			
Guarantees				
				Success: Gets an intense view of the reviews for apartment management and maintenance record
				Minimal: If no one has done extended review, they would still see minimal 5star rating of the apartment building
Main Success Scenario				
	1. Logs in Aparto Website	Go to Owner Dashboard		
	2. Select/Search for the apartment building	Go to the Apartment Building Page		Database to pull data from
	3. Choose the criteria to review – apartment reviews, management reviews etc.	Go to the selected page		Database to pull data from
Extensions				
	1a. Enters wrong login credentials	Stay on page with flagged error		