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Rig Reviews: Final Report

Introduction

Rig Reviews is a responsive website that can be accessed from a mobile device or a computer for the purpose of reviewing truck drivers while on I-81. This system is meant to be a modern day replacement for *1-800 How's My Driving* that is more intuitive and encouraging for the audience to use. Reviewers can leave feedback for truckers and, in turn, the companies that employ them.

Concept Evolution

To come up with our initial idea we did a brainstorm of concepts that revolved around truckers. We thought about existing systems that we could make better, ideas that could make driving safer, and concepts that would make a task more convenient for these drivers while they are on the road. We ended this brainstorm session with about 16 ideas to work with, and narrowed it down to five. From these five ideas we used a concept selection matrix to make a decision on which idea would be the one to implement. We chose; Ease to Implement, Ease to Maintain, Grabs Audience, Low Cost, and Sustainability as the criteria to compare across the ideas. This gave us the chart below:

	Easy to Implement	Easy to Maintain	Grabs Audience	Low Cost	Sustainability
Travel Companion			+		+
Dating App	+	+		+	
Alertness		+		+	
Trucking Game		+	+		+
How's My Driving?	+	+	+	+	+

The five ideas we started with all met at least two of the criteria we chose, but in the end *How's My Driving?* met the most criteria. We all agreed that this was the best choice because on top of meeting all of the criteria, it is the most marketable and has the best real world application. The original concept for this idea was:

“An android app that allows other drivers on 81 (cars or truckers) to crowd source info for a truck. Each truck would have a code of sorts that identifies it among all other trucks and anybody with access to the code could send information to the truck directly. If the driver was driving dangerously they would be notified in real time. A way to improve driver safety overall.”

After revisiting our audience and who we want to use this website we came up with a more refined idea for implementation:

“A responsive website that can be accessed from mobile devices that will give the user an ability to send reviews, comments, or warnings to truckers using a code specific to the truck. We will implement this using Ruby on Rails, MySQL, a simple API and it will be hosted on OpenShift. The front end will use jQuery, API Ajax Calls, Bootstrap, and SASS.”

We decided to switch to a responsive website so we didn’t limit the users to just android devices and so we could reach out to a wider audience. This refined concept idea gave our project more focus so we could move forward with design and prototyping.

Using all of this information, we began to further our concept. We decided that, not only did we want to crowdsource information for trucks, we wanted trucking companies to be able to make use of this information. So not only did we want drivers to be able to communicate with truckers, but also with the associated company. This is the idea that became Rig Reviews.

Audience

When we settled on the idea of Rig Reviews, we came to the conclusion that truckers were not actual the only primary audience for this system. There were three major users: commuters, trucking companies, and truckers. We have a fairly wide range of audiences because we realize that all three of these groups will access and use our application in a unique way, and each of them play a pivotal role in our system.

Commuters

Commuters are the lifeblood that make Rig Reviews possible. Without commuters, we have an empty system with no reviews. Commuters are able to review any truck registered with Rig Reviews. This gives them a platform to express their complaints and concerns, as well offer feedback about the trucker as well.

Our commuters are defined by the need to drive along I-81 in their daily lives. This mainly includes people driving to and from school, work, or common outings. I-81 is known for a large population of trucks, so Rig Reviews offers a lot to the common person driving alongside them.

Trucking Companies

Trucking Companies have arguably the most to gain from Rig Reviews. Unlike commuters, who have an opportunity to have their voice heard, trucking companies are able to use Rig Reviews to crowdsource information. They are able to take the reviews supplied by the commuters and use it to better their corporation.

Truckers

Truckers are able to acquire feedback about their driving from the commuters reviewing them. While they don't have quite as much to gain as the companies might, they do get the opportunity to review their feedback and take it into account while on the road.

Audience Relationship

The general relationship of our three audiences is fairly simple. The commuter offers up feedback, which is delivered straight to both the trucker and the trucking company. The company receives this information and has the opportunity to act upon it. If a trucker is unsatisfactory to their standards, they now have the opportunity to confront the trucker and make necessary changes. The trucker also receives this information so they can be aware of their feedback and has the opportunity to take proactive measures to improve their performance. This flow of information offers a lot of communication between the commuter and the trucker and the company, as well as communication between the company and the trucker.

Concept Design

When it came to designing our systems, we took several different viewpoints into account. The obvious three design focuses, branding, content, and function, we had to revisit several times. The branding was fairly simple, but the content and function of the site changed as we developed our concept. The most important aspect of Rig Reviews was to create an appealing and intuitive organizational structure. And, after many design concepts, we realized the disconnect between how our users used system needed to be reflected in our site's design. This is what brought us to the idea of having different views for different audiences.

Content

The site's content is different for each user. The main difference is between the commuter side and the trucker and trucking company side. On the commuter side, the content, or what the user wants to know, is very minimal. The commuters have more to offer to the system than the system has to offer them. The most content that the commuter can access is the ratings they have given out and the general information of a truck they are reviewing.

The trucker and company side of the system has more content than function. The truckers can look over the feedback they have received, and general statistics pertaining to the reviews, as a whole. The company has the same information, but at a larger scale. Unlike truckers, who only see their own feedback and statistics, the company can see all of the truckers' reviews as well as statistics of the entire company.

Function

Like the content, the function varies from user to user. The commuter side, which had very little to gain from the content, has most all of the active functionality. The commuter is able to use the system to leave reviews and create feedback for the truckers and companies to view.

The truckers and companies, on the other hand, can't do much with the system. the trucker, specifically, cannot actually do anything with the site besides viewing his or her feedback. The company, on the other hand, has the opportunity to add and remove trucks from their fleet. However, other than that, their only functionality is viewing feedback and statistics.

Branding

As mentioned above, we called our system Rig Reviews. The title refers to the act of reviewing a truck, also known as a big-rig. This aspect of design we left consistent between all audiences. We have two logos to represent our system, with one being a simplified version of the other.

The first logo is our official Rig Review logo. This icon shows up on the navigation bar for all commuter screens. The second logo is used as a reminder when we cannot use the main logo in appropriate places. For instance, this logo, alongside with the five digit code, will be printed on trucks registered with Rig Review.

Tools and Media

The site was built using the Ruby/Rails Development stack which includes Ruby on Rails, MySQL, jQuery and SCSS for stylesheets. Rails acts as the server and web framework to serve all of our pages and media. MySQL was used in conjunction with Rails migrations. jQuery was used so we could take advantage of a handful of jQuery plugins that are listed below.

- RateYo - http://rateyo.fundoocode.ninja/
- Alertify - http://alertifyjs.com/notifier.html
- DataTables - https://www.datatables.net/
- bPopup -http://dinbror.dk/bpopup/

The only vanilla JavaScript library used is ChartJS (http://www.chartjs.org). The api the site uses is custom built by us for this project. It is nothing special past a specialized controller that allows us to host a non-cross domain api for use with ajax calls. The entire project has been maintained on GitHub since day one located at https://github.com/ImpulseChimp/CS4634FinalProject. For hosting the project, we used OpenShift which is a hosting service that has a generous free tiers for developers.

The logo of the website was built using http://logomakr.com/ which allowed us to piece together the site brand. All default profile pictures and the landing page background are taken from google search. We don't intend to use any of these images in the future if for some reason the project continues so we are claiming fair use for educational purposes.

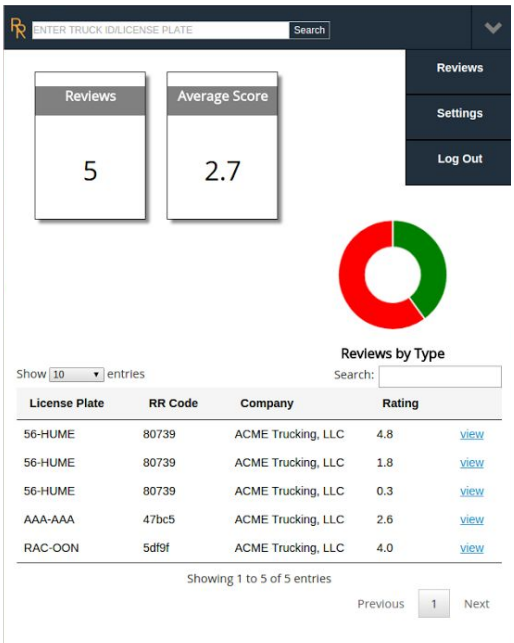
Implementation

As previously mentioned, Rig Reviews was created using Ruby on Rails, but we will explain in more detail below how each type of profile on the site was put together using the media and tools mentioned in the previous section.

Commuter View

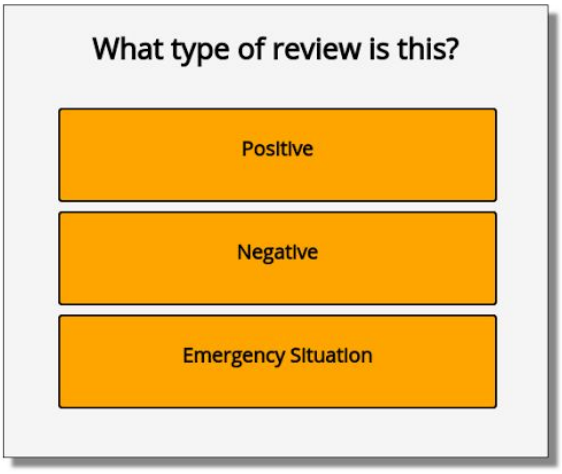
The commuter view of the site is the most unique of the three site views. They have a dashboard, reviews page, settings page, and are able to access any truck on the database through a search bar and leave a review on any truck found.

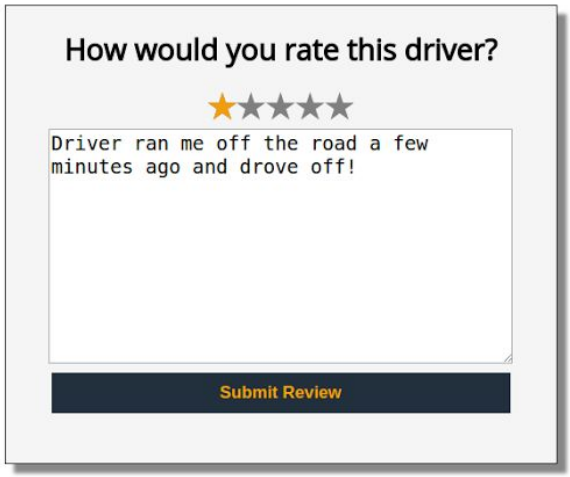
User Navigation Bar: Unlike the trucker and company view, the commuter view has a navigation bar at the top of each of the screens. This navigation bar always offers a "Home" button, as well as a drop down menu for relevant pages for the commuter. Additionally, if the user navigates away from the home page, a search bar will appear on nav bar as well. This way the user always has access to our site's primary focus which is making reviews anywhere on the site. The bar is fully responsive and modifies the brand logo and search bar as necessary depending on screen size. Our "Home" button, like many other sites, is simply an image of our logo. This is a common practice on many sites, and we want to stay consistent with that idea. The drop down menu is a css only menu that contains three items: "Reviews," "Settings," and "Logout."



User Dashboard: The “Home” page for the commuter shows the user’s most recent reviews, as well as a search bar for truck look up. This in the only location that the user doesn’t have access to the search bar in the nav menu since we prominently feature it on their dashboard. When the user searches for a truck that is registered with Rig Reviews, they will be redirected to a landing page with the trucker’s information. Below the search bar is the most recent 5 reviews the user has left for quick viewing.

Search Result: Once a user searches a truck, they are redirected to either a “no truck found” message or a page including a card with the truck license plate number, Rig Review number, company, truck image, star rating, and the number of reviews they’ve received. There is also a button that allows the user to leave a review that spans most of the card width.





Leaving a Review: When leaving a review, the user is prompted with three choices: “Positive, “Negative,” and “Neutral.” Upon clicking either “Positive” or “Negative,” they

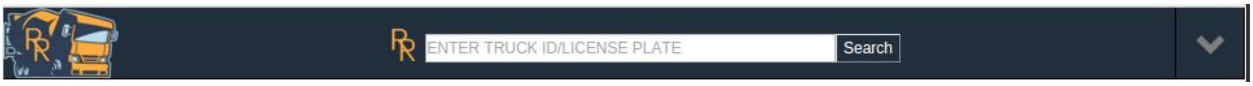
are asked whether their review pertains to the driver's "Driving" or "Behavior." Each of these four possibilities contain a list of two further descriptors, as well as an "Other" category. The user can then choose a star rating, leave a comment, then submit the review. Given that the leaving a review is such a large part of the website, we took special care when developing it. The page works by generating almost all HTML with custom jQuery we wrote. Based on what you click, values of each button are sent to functions that evaluate the correct action to take. When the page loads, the current stage through the review is set to zero, and for each button clicked, the stage moves up by one. We then store the index of the button pressed and the value of the buttons text in two separate arrays to act as a numerical and textual history of the review in progress. No matter what stage of the review the user is in, the JavaScript knows what has been pressed and is able to save it to our database upon submission. All of the stages of the decision tree are stored in a set of arrays that work off of the indexing of the buttons. The values of the arrays are hardcoded at the moment, but would not take much more effort to attach to our database and load truck/company specific values if needed.

Your Recent 5 Reviews

License Plate	RR Code	Company	Rating	
56-HUME	80739	ACME Trucking, LLC	4.8	view
56-HUME	80739	ACME Trucking, LLC	1.8	view
AAA-AAA	47bc5	ACME Trucking, LLC	2.6	view
RAC-OON	5df9f	ACME Trucking, LLC	4.0	view
56-HUME	80739	ACME Trucking, LLC	0.3	view

View all (5)

Reviews: The "Reviews" page has a full list of reviews that the user has left in a searchable table that uses jQuery.DataTables. Each item on the list contains the general information about the review and links to a popup that holds more detail. Additionally, the screen shows several statistics including a donut chart of the types of reviews the user has left.



Search Bar: The search bar was built using a modification of a value autocomplete jQuery snippet found online. By turning the trucks that need to be searched into a formatted array of values, we are able to search and index using jquery and event callbacks. While this solution is viable for making a proof of concept design, it is not a long term solution. Ultimately, the search bar should poll an elasticsearch database for values or something similar, but due to the amount of time that would take to set up, we decided for the simpler approach.

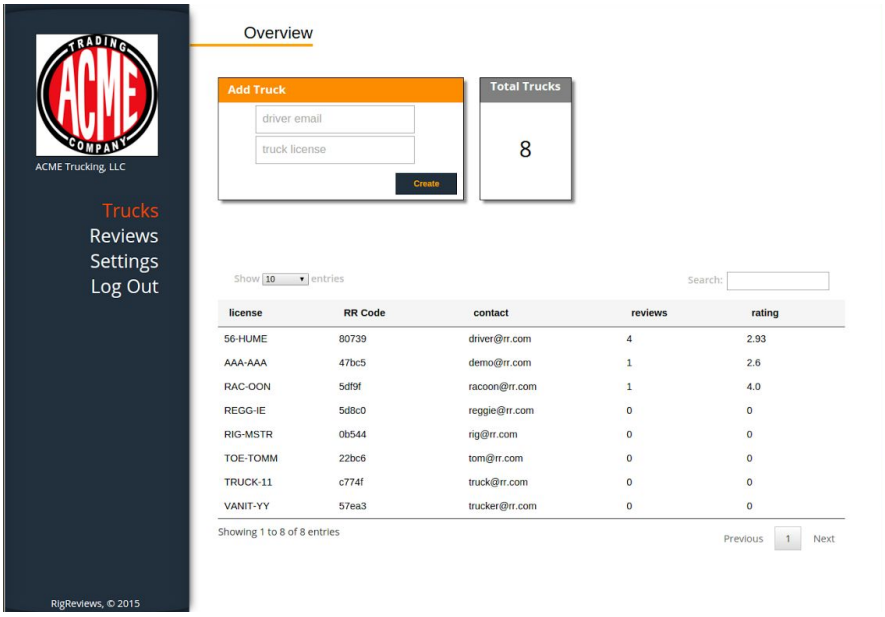
Trucker View

The trucker view is vastly different from the commuter view, as it offers more content for the user than it does functionality. This view, as well as the company view uses a sidebar instead of the top nav bar unless the screen size is small enough. The sidebar allows us to give the trucker a more profile-oriented/width based structure. The trucker can view reviews and manage their settings.

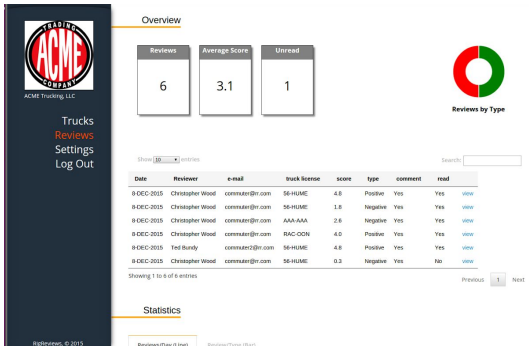
Reviews: The “Reviews” page is the trucker’s default home page, and presents all of the trucker’s feedback as well as some statistics. The first portion of the page, the Overview, shows the trucker their total reviews, average star rating, number of unread reviews, as well as a graph showing the division between positive, negative, and emergency reviews. The unread reviews count keeps track of when reviews are viewed on the system and updates in real time. Below this is a searchable list using jQuery.DataTables that has all of the truckers reviews paginated by 10. The last part of this page has a line graph showing review frequency by day of the month and a bar chart with type of review by day. This is stored in a JS/CSS tab navigation. All charts are running under Chart.js and are generated by information our controller computes on page load and injects into the Javascript. All of the graphs on the site are loaded this way using data from the controller upon page load instead of using Ajax requests.

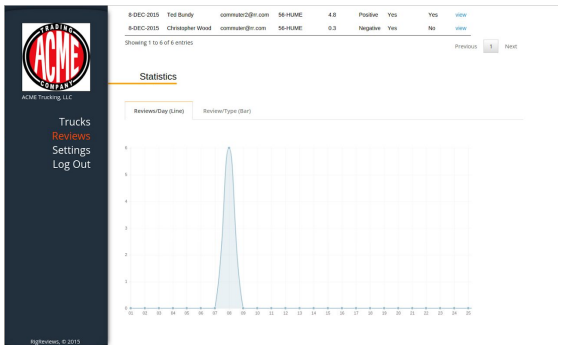
Company View

The company view of the site is very much like the trucker view, but with a little bit more content and a broader scope of information. The company can view all trucks they have created and all reviews their truck has received.



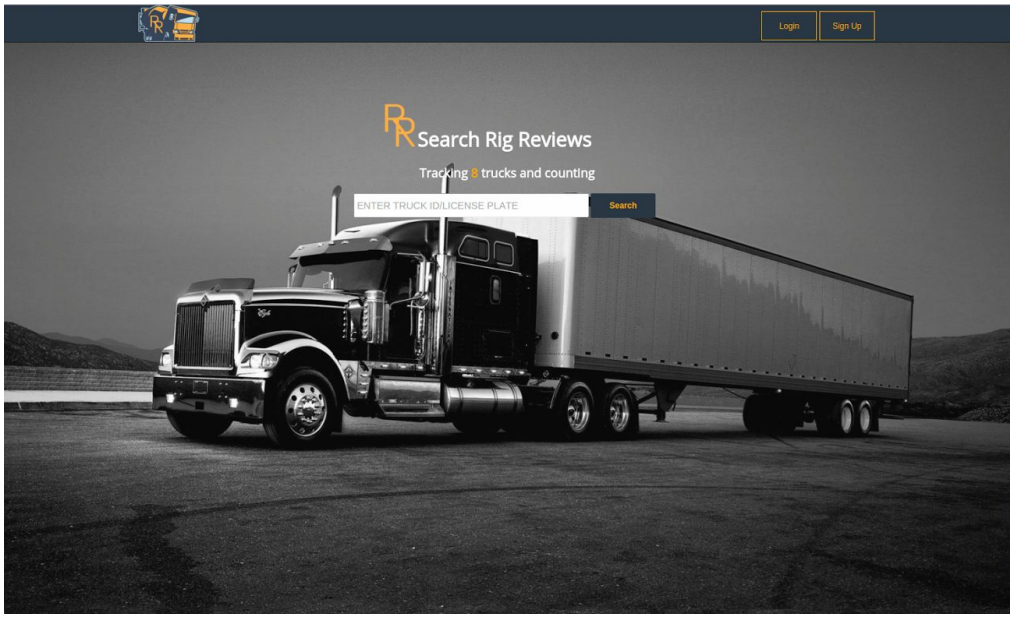
Trucks: The “Trucks” page is the dashboard for companies and has a way to add trucks to a company's fleet, and view all trucks in the company's fleet using a searchable table. This page is very simple and acts as a summary of what the company has overall.





Reviews: The “Reviews” page functions almost identically to the trucker’s version of the page, except it can see reviews for all the trucks in its fleet. Everything else on the page is identical in functionality, the data is just between all trucks instead of one.

Public



Landing: The landing page is the simplest of all of the pages of the site. The navigation bar links to the login and sign up for the site and the search bar in the middle allows users to search the site. As of right now, you can't leave a review without being logged in, but you can view the trucks regardless and see their public data. It's meant to be simple and move the user to the next part of the site.

Login and Registration: As with traditional websites, we have a login and register page that functions just as any other website. When actually handing user information, we make sure that any password entered into the site is hashed and salted so even we will not know any users passwords. This we felt needed to be part of the site since without solid security, you can't release a quality product. Note that you cannot sign up as a trucker. When a company adds a truck to their fleet, only then is the trucker's account created. Since we were unable to get our email server up and running, all trucker accounts are created with "password" as the default password.

Responsibilities

Below is a graph that shows the general division of work across the semester.

	Wireframes	Prototypes	Design	Coding	Testing	Presentations	Reports
Christopher W.		✔	✔	✔		✔	✔
Ian V.	✔		✔	✔	✔	✔	
Kyle J.	✔		✔	✔	✔	✔	
Luke M.		✔	✔	✔		✔	✔

Roadblocks and Issues

The course of our project was fairly smooth, for the most part. We almost never had any debilitating issues or problems that stopped us for any extensive period of time. The majority of our issues were a matter of design problems. Many times we were stuck on trying to fix a design that clearly did not work.

One of the most prominent examples of these issues was the realization that the commuter view did not need a sidebar, and that the trucker and trucking company view did not need the navigation bar. Up until that point, we were grasping at straws to try and come up with content for these features. Ultimately, it took us taking a step back and realizing that we needed a design that reflects the relationship of our audiences and the system, and so we changed the site's navigation.

However, our most damaging setback came with our mailing system. Ruby on Rails comes with it's own email support and we have experience in setting up and using it from previous project. For some reason, we have been unable to get it working for this project, so certain functionality does not work such as change password and email. The functionality is written, but without emails, cannot fully work. For every place this created a problem we were able to make a temporary workaround, but it threw us for a loop for a while given how much of the site originally relied off of emails to work.

Testing

Our system has a lot of manual testing. We, as well as several members of the commuter audience, spent a good deal of time toying with the site and checking its features. We made sure to follow up with the participants of our open card sort from homework 5. We had all of our users try out multiple viewpoints of the site as well. Many of our users were pleased with the general design and functionality of the site, and

offered up several opinions on various review types. However, we were not able to do unit testing or end-to-end testing due to time constraints.

Benchmark Comparisons

There was little need for benchmarking for our system, as we didn't have much to compare. The only real concerns to our site is how much data is being passed in, but, for now, there isn't enough data for the system to be concerned. Everything runs extremely fast without load times or hangups. Benchmarking is very hard to do for a system that we can't flood with data. Also, benchmarking for a site like this relies off of the server it is hosted on and since we are not designing for a single server and can't optimize functionality, it doesn't apply to situation as much.

Site Deployment and Maintenance

The site deployment is on OpenShift by RedHat Linux as mentioned previously in the report. We have been having some trouble getting it to work smoothly on the platform, but it is the best development environment for free that gives us actual server functionality on a cloud network. Maintenance of the project should be fairly simple since we followed general design principles such as the Rails files structure paradigm as well as our own personal development standards to coding. As long as the standards are maintained from this point out, we have created a very solid structure to build off of for the future.

Conclusion

When designing Rig Reviews, we thought about each of our audiences very carefully. We made sure to cater to the needs of each audience, and never gave them any more than they needed, and certainly never any less. This is why our design is best suited for this situation. The commuter's view of the site is simple and quick. Commuters never need to spend extensive time using our system. This is important for when the commuter is on the road. We want our commuter users to be able to use our system quickly on the go, and to not distract themselves from what they're currently doing.

The trucker's view of the site is also simple, but much more informative. There isn't much for them to actively do on the site, but there is a lot of feedback for them to view. The content is laid out plainly enough that they don't have to struggle through deciphering our data. The trucking company's view of the site is verbosely informative. They have the most information to gain from all of our audience, as well as a fair amount of control. We want the company to be able to learn a lot from the reviews left by commuters.

Rig Reviews respects its audience. It molds to the user and tries to work with them. That is the cornerstone to our design. We made sure, through our iterations, to make the designs relate to each audience independently, as is reflected in our top and side navigation bars. We believe that this is what makes the site stand out and is what makes our product designed for each of our users individually without compromising.