MyMechanic Final Report

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The Problem

For my final project, I wanted to address an issue with the automotive industry that I've heard echoed around since I learned to talk. When it comes to auto repair, people can't always trust mechanics. Unfortunately, this mistrust is not irrational, and comes from a long history of dishonest mechanics preying on unsavvy consumers. From this precedent, our culture has learned to be wary of mechanic's cries of 'preventative maintenance' and 'imminent failure.' After all the confusion has settled, the ultimate casualty ends up being cars and wallets. Some cars are not serviced sufficiently, while other wallets are drained relentlessly. At the end of the day, a few bad mechanics are ruining the reputation of the industry, leaving customers at a loss as to which service they actually need. This sentiment has been the single constant throughout my journey of designing and validating this app. After talking to diverse groups of people, I am confident this problem affects a large portion of our population.

Who are the main actors in this cycle of doubt? In my research, I identified two primary archetypes of people: mechanics, and consumers. The mechanics represent everybody working in an auto shop diagnosing and repairing vehicles. These people work hard to accurately identify a customer's problem in order to keep their customers coming back. They understand the stigma surrounding dishonest mechanics and they want to do what they can to demonstrate their honesty to their clients.

Consumers represent the normal people of the world. People who might know that cars are generally powered by engines that take gas, but don't know the difference between a carburetor and fuel injection system. This persona represents people who take their car into a shop to have it serviced, not those who know enough to do it themself. When something in their car breaks, a normal consumer just wants to have the appropriate thing fixed at an appropriate price. Unfortunately for this group, they don't have the technical know-how to dig around in their car's engine bay and find the damaged components on their own.

My Solution

Now that the stage has been set, let's explore 'MyMechanic', an app designed to bridge the gap in trust between mechanics and consumers. MyMechanic's primary function is to allow mechanics and service technicians to seamlessly create reports documenting and detailing what service is needed and why. Using this app, a

technician can find a broken part of a customer's car, take a picture of it, and send that off to the customer with a brief description detailing pros/cons of replacement along with the expected cost. When the customer receives the quote, they can review the images and information, then decide how they would like to proceed. They can either approve the recommended service, or they can call the mechanic to ask questions and explore alternatives.

User Tests and Iterative Design

From my user testing, consumers love being able to see images of specific damage on their own car. They felt that even if they didn't know a lot about the part in question, they could do their own research and find answers about what needed to be done. Additionally, consumers appreciated the ability to show the images to their more savvy friends and have them evaluate if there was significant damage. Finally, my users reported a much higher likelihood of approving a service if they could see and investigate damage on their own instead of just having to take the mechanic's word for it (7.6/10 likelihood of repair instead of 5.6/10 over 5 users).

After doing some initial research to validate the concerns I had heard, I began work on my initial prototype. This prototype was built fully in react-native and supported much of the core functionality of the future app. While it did look quite ugly, it had enough functionality to do user testing and see how the app could be improved. The most important feedback I got here was that the app should allow multiple picture uploads. This came up in 3 of my 5 user tests, so I was very inclined to add this feature into the next prototype.

Another piece of feedback that came up was the potential difficulty in getting consumers to download an application on their phone. Mechanics don't have a hard time installing apps on their phones, but forcing their customers to download an app just to view information about their car didn't seem like a good business idea. This piece of feedback prompted me to migrate the app from being a strictly react-native based display, into a react-native angular hybrid. In this new approach, the app would wrap an angular based website. This allows a customer to view their case in a browser while still giving native performance and installability on mobile devices. Migrating to this react-angular hybrid did mean a complete re-write for my second prototype, but I think the additional usability was worth it.

One piece of feedback I decided to not address was the request for more aspect ratio support. My former auto shop teacher Mr. Winkler had mentioned that this app would likely be installed on a shop tablet, not a technician's phone. To account for this, I

would have to add a new layout design optimized for tablets. While this piece of feedback is very relevant to a production app, I didn't have the time or devices to do user testing on both a phone and a tablet. The additional design surface area would have significantly increased the needed validation without improving the user experience of those using a normal phone.

After doing my first round of user testing, I officially made the switch to react-angular and started working on my second prototype. For this prototype, I was focused on both implementing the chosen pieces of feedback from the first round of testing and on improving the design to look production ready. While in a technical sense doing the first prototype was not particularly productive, the user testing it allowed me to conduct resulted in a significantly improved second prototype. There were two main changes to the visual style of the app. Firstly, I used a monochromatic color scheme focused around blue. Research has shown blue to invoke feelings of trustworthiness and safety, so I chose that for my app's main color. Secondly, I tried to use material design specifications in my app to give it a 'googly' feel.

Once I had finished building up my second prototype, I went to work again on user testing and evaluation. During my tests, I found users to be quite satisfied with the overall design and layout of the app. They said it was generally intuitive and self-explanatory. These bits of feedback confirmed my decision to switch to material design spec for my final prototype. One piece of feedback I received was the addition of an explicit 'cost' feature. This is a feature which would allow mechanics to specify the full cost of a service when sending the report to a customer. This feature was initially suggested by my T.A. but the users I spoke to also found this feature useful, so I decided to add it to the app.

The final piece of feedback I decided to address was the addition of the login page. This page was important because it represents that multiple mechanic shops can use this same app. Even though there is no back-end to verify user logins or manage sessions, this page does a lot to expand the scope of how this application can be applied.

Final Validation

After going through both rounds of user testing and feedback, I decided to show my final prototype to consumers and get their thoughts. While this round did not use a formal test script, I was able to get valuable information. My main takeaway was that consumers wanted mechanics to use this app. Each of the 5 users I showed this app to said they would rather go to a shop that uses this app over one that does not. Not only

would they rather go to these shops, but they were significantly more likely to purchase service presented through my app. Both of these facts point to the conclusion that I have helped bridge the gap between consumers and mechanics through this project.

Future Works

This project was done in a single term, so I didn't have the time or resources to implement all the functionality I would want a real product to have. One user during my final validation thought adding a timeline would be very useful for coordinating schedules and managing expectations. This would work similarly to Papa John's pizza tracker which shows you which stage of preparation your pizza is in. For example, when you drop your car off it would be 'awaiting diagnosis', then it would move to 'diagnosed, awaiting approval', then 'serviced, awaiting pickup'. I agree that this would be a great addition to my app and I wish I had the time to add this into my prototype. Another feature I would add to my app if it were to go into production is a search feature. By allowing techs to find cases more quickly, I would avoid wasting their time and improve the useability of my app.