

Element C: Presentation and justification of solution design requirements

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Before brainstorming solutions for our problem statement, we focused on learning who our primary customers are, and who the stakeholders of our product are. We created a customer profile for our ideal customer based on the people who buy our product. Our ideal customer is someone who does not know mechanics and often misunderstands the check engine light. We concluded that a woman with a family is the perfect customer for our solution. She would not have time to put her energy into car work and does not have the wide range of knowledge about cars. We based these criteria upon our own observations and survey results to create our customer profile.

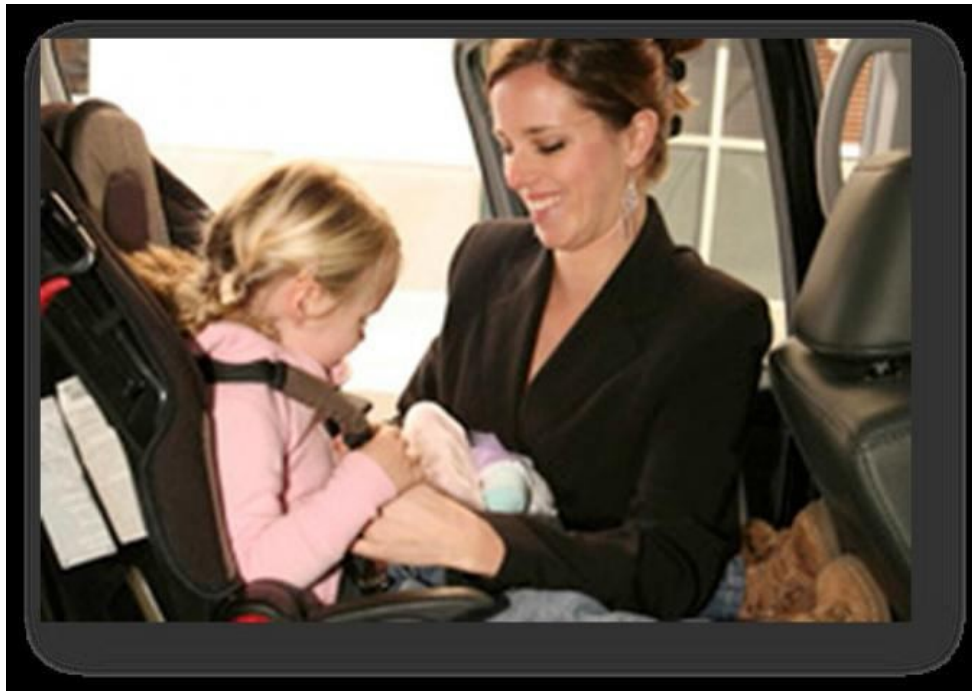
Name: Kristen Full-timeDriver

Profile: Kristen is a hardworking, stay at home mom who is constantly using her car to drive her children to various activities throughout the day. This alone is a full time job as she loves her family and loves doing things for them. Kristen worries about car safety because she is consistently in the car with her children all through each day. Her husband has a job that pays well, but is often traveling for his work, leaving Kristen at home with her children. While in the car, the check engine light has come on which makes her worry about the safety of her vehicle. Kristen does not know mechanics and has no idea of how to check her car due to the check engine light. This lack of knowledge results in an expensive trip to the auto mechanic for sometimes non-critical issues. Due to her family's income, Kristen is willing to spend \$25 to \$50 for an in-car device that would alert her when the check engine light comes on and immediately provide a vehicle diagnostic. This device needs to be stored in the car, but easily seen in the case of the check engine light going off. The information needs to be clear and to the point, so she can assess the problem in her car to determine if safety is an issue for her children.

Besides our initial customer, we focused on businesses that would use our product to their advantage. Thus, we determined that auto parts stores that sell parts, tools, and other miscellaneous items would be our best businesses. Once people learn how to fix their own vehicles, people would be more inclined to buy the parts and fix the car themselves instead of taking it to a mechanic. Some large corporate repair shops would be Midas, Meineke, Blain's Farm and Fleet, Car-x, car manufacture auto-body shops (i.e., Ford Auto Body Shop), and other local auto body shops. We attempted to reach out to some of these repair shops by sending an email to get their input on our problem and see if they would be interested in a product that would solve such an issue. We emailed AutoZone, O'Reilly Auto Parts, and NAPA Auto Parts.

Email Sent to AutoZone, O'Reilly Auto Parts, and NAPA Auto Parts:

Hello,



I am working on a project for my [redacted information] class at [redacted name of school]. Our project is to come up with a problem in the world today, and see if there is a way to fix it. A problem I chose was when the check engine light comes on in our motor vehicles and we want to know the problem but are forced to either get an OBDII reader or take it into a mechanic. Our solution is to eventually create a device that would be implemented within the vehicle itself that decodes the problem of your vehicle when you check engine light comes on, give the solution, and how to fix it with its own screen that displays all of that information. We would like to know if this would be a beneficial idea to your business, and something you would eventually use. I appreciate your time and talent as you get back to us.

Thank you.

(Sent November 6, 2012) O'Reilly Auto Parts. NAPA Auto Parts. Auto Zone Auto Parts.

We received a response from AutoZone and O'Reilly that pointed us toward sending in additional information to be a supplier. This was not what we expected as a response, and we tried to call the phone number supplied in the emails they sent. However, they still led us to the same place to be a supplier. NAPA Auto Parts has yet to send a response.

Email Response from O'Reilly Auto Parts:

Thank you for your interest in O'Reilly Auto Parts

O'Reilly Auto Parts is looking for suppliers to help meet our Right Part

Right Price guarantee to our retail customers and professional installers.

We currently partner with hundreds of suppliers ranging in size from one man companies to billion dollar organizations based countries all over the world. O'Reilly relies upon our suppliers to provide a wide range of quality products our customers expect. To accomplish this goal we are constantly looking for new relationships within the automotive industry.

We hope you find the information to be informative and the process easy to understand.

Once a product manager makes the decision to further discuss your product or decline it, you will receive an email with either next steps or with an explanation of why the product was not a fit for O'Reilly Auto Parts at this time.

Thank You,

O'Reilly Auto Parts

233 S. Patterson

Springfield, MO 65802

417-862-8674

Email Response from AutoZone:

Thank you for taking the time to contact us. Please go back to the AutoZone.com website and in the "Corporate Info" section at the bottom of our page, select "About AutoZone", then select "Vendor Info". In there, you will find the vendor business opportunity guidelines that will help you get started.

http://www.autozoneinc.com/about_us/vendor_info/index.html (http://www.autozoneinc.com/about_us/vendor_info/index.html)

If you need further assistance, please feel free to contact us.

Thank you!

AutoZone Customer Service Department.

Phone number: 1-800-288-6966

We believe that these auto part stores may someday be interested in a product that would give more information to customers based on codes given from car diagnostics. Therefore, these stores may show more interest once the product is fully developed and they would pursue us as a supplier.

In the process of brainstorming solutions to our problem, we began deciding what design specifications were required for our product. Initially, we focused on a solution that would be an actual product stored somewhere in the car. Therefore, we focused on our product being inexpensive, eye-level, compact, and an arm's length away.

We determined that these ideals were important for the safety of the driver and to avoid distractions while driving. However, once we branched out and focused more on technical advances for solutions, we realized these design specifications would not work because they were too narrow and did not effectively address the needs for our product. We began to focus on what is required for technical systems and computer related issues. We still kept inexpensive and safety as necessary specifications. Additionally, we added universal system, accessible materials and technology, and updatable as design specifications because upon interviews and talking with our experts; we discovered that any computer/software based system needs to be constantly updated, universal, and accessible.

Design Specifications:

(Order is from most important to least important)

1. Universal: Solution must use the On-board diagnostic System (OBDII) that is used on all cars 1996 and newer.
2. Safety: Solution must not be a hazardous distraction to the driver either (Driver distractions include three categories: visual distractions, manual distractions, and cognitive distractions^[1])
 - a. Such distractions may include: eating, talking with passengers, reading maps or newspapers, writing, using a cell phone, using computer and navigation device. Thus, we want to avoid or prevent any distraction.
3. Accessible Materials and Technology (Should be able to access materials online or in stores, and use technology that already exists)
4. Updatable (Easy to update by manufacturers and without unreasonable expenses)
5. Inexpensive: \$25-\$50 (Amount taken from Previous Survey)

[1] "AAA Exchange." Distracted Driving. AAA Exchange, 2011. Web. 13 Dec. 2012. <<http://exchange.aaa.com/safety/distracted-driving/>> (<http://exchange.aaa.com/safety/distracted-driving/>>).