

Element K: Reflection on the design project

COMPENSATION DESIGN & DEVELOPMENT
April 2013 Final Presentations

Project Name: The Check Engine Light

Project Step	Rating (1 to 5) 5 is best	Comments
❖ Problem statement ❖ Background of Problem	5	
❖ Validation of the problem ○ Experts ○ Patents/Existing Products ○ Survey or Consumer Input	5	Great job explaining the problem and more importantly saying why this problem is important
❖ Possible solutions ○ Solutions considered ○ Brainstorming process ○ Solutions not considered for further development and why	4	
❖ Choice of optimum solution ○ Design Criteria/specifications (prioritized, measureable) ○ Design matrix ○ Feedback from experts and/or consumers	5	Good job setting up the scope of a project and setting priorities
❖ Design and optimize ○ Sketches of best solution ○ Materials chosen and why ○ Math/Science principles	5	
❖ Prototype development ○ Photos, sketches, CAD and/or video ○ Refinements, changes made as prototype developed ○ Bill of materials/parts list	5	The prototype as changes show great refinement of your project
❖ Testing of prototype ○ Photos, data, graphs, Inventor analysis ○ Relate back to design specs	5	
❖ Final Design ○ What would change? ○ What will actual product look like, be made from, etc.?	5	
❖ Next steps (if you had more time you would...)	5	
❖ Sources/Acknowledgements	5	

Great work and a very impressive presentation!

Throughout this project, we have discovered our achievements and our shortcomings. We have successfully created a prototype that answers our original problem statement. In general, our project went smoothly and was a success. Additionally, the design process was correctly followed with thorough analysis at each element.

Throughout our validation of our problem, we worked extremely well to receive feedback of the validity of our problem and research our topic thoroughly. We accomplished this task through our various surveys, scholarly articles, and additional research. From this analyzed step, we were able to proceed to further steps without complications regarding validity. To increase this evaluation, we would have liked to reach out to more experts who worked on cars solely for a living.

In our brainstorming and deciding a solution steps, we did fairly well. We worked well to exhaust all possible solutions with coming up with 30 ideas. We also were able to eliminate possible solutions through two decision matrices. Through this step, we were able to take back our top three ideas to stakeholders for evaluation. In this evaluation, we were confident that our final solutions were reasonable and a desired product. In this step, we could have done more to take our top three ideas to stakeholders. We did hold interviews and an additional survey. However, we should have also focused on taking our three ideas to a variety of more interviews with mechanics who work with cars as their career.

The next step was the building process. This step has the most shortcomings of our entire project. We failed to manage our time well, as we fell short of our goal of making an actual app. We would have liked to create this app to show the entire process without unnecessary steps. However, we ran out of time, and determined that testing our prototype was more important. On the other hand, we are very proud of our testing as it provided a unique way to simulate driving and determine the visual distractions it could cause. This testing gave us success in proving that our refinements of our product were needed and successful.

Overall, we learned valuable lessons throughout the experience of using the design process. The first lesson was time management. We learned this the hard way as we did not complete our dream goal of our final design. Additionally, we learned valuable tools of how to properly document the design process through using Innovation Portal. We were able to practice our engineer writing skills in conjunction with our project. As a whole, we also learned more about vehicles and the OBDII system that related with our problem statement. Through this experience we became more comfortable with this system. Our project was a success as our presentation at the end of the year proved our hard work and determination to complete the design process. We had great feedback from engineers who took interest in our design, and said that we had a well-informed presentation.

Through this experience, we would give others the advice we had to learn through our shortcomings. The most important aspect of design process is time management. If one knows how to manage his/her time, the project will run more smoothly. Additionally, we would advise others to accept any problems or issues that surface through the process. These failures may lead to a greater success, as long as one does not give up

November 16, 2012

Project Name: <u>CHECK ENGINE LIGHT</u>	
Steps	Comments
Problem Statement	
Statistics	don't read off slides goal starts! - shorten bullet points
Validation of problem <ul style="list-style-type: none"> - Survey results (summarize, tell what conclusions you drew from them) - Expert input on problem - Existing products (pictures, pros and cons) - Patents (pictures, pros and cons) - Academic articles (scholar.google.com) 	→ hard to read → what did 2nd expert tell you? → how expensive? → get cleaner photo (snagit?)
Market analysis <ul style="list-style-type: none"> - Competitors - products, cost, how distributed - Market size - Customer profile 	"sucky win" - rephrase give source for \$30 Billion → show OK
Design Specifications <ul style="list-style-type: none"> - Specific - Measurable - Justified 	30-40" seems too high how did you decide on the dimensions?
Possible solutions	show problem vs. code?

OB迪1 - specification
how does it interact
plug already in there

does connector access computer when car is off?
work in accessory mode

connect to cellular network
costs \$



Check Engine Light

Project Step	Rating (1 to 5) 5 is best	Comments
<p><- Problem statement</p> <p>Validation of problem</p> <p>o Problem</p> <p>o Existing Products</p> <p>o Survey consumer input</p>		<p>p...\$l.o!...ftJ- Sij'' s 't.(</p> <p>...il... / J...W".</p>
<p>= Possible solutions</p> <p>o Solutions considered</p> <p>o Brainstorming</p> <p>o Solutions not considered for further development</p> <p>o Choose optimal solution</p> <p>o Design Matrix</p> <p>o Feedback from</p>		<p>f. c... .., f.)6J 'S/</p> <p>V' e ,,W,</p> <p>SH> (co. " 't... It</p> <p>... t.q,,I; iij</p>
<p>Sketches of best solution</p> <p>Mill drawn and why</p>		<p>On his/her critical concept</p> <p>tAl.</p>
<p>Prototype development</p> <p>o Shows initial design, OD "3" (if < x" iOeO</p> <p>o Refinements, Oilings made as per OUC (pC pcd</p> <p>o Bill of materials (parts list)</p> <p><- Test bench; O: prototype</p> <p>o Photos, data. pHS, lnwntt></p> <p>Rate back to design</p> <p>Final Design</p> <p>o Willing to change?</p> <p>Willing to change? IC1 look like.</p> <p>be made into etc.'</p>		<p>Pricing very good.</p> <p>Overall, very good solution</p> <p>t.wff.. 11: / f... \Jit It></p> <p>CA. 11lw, ...</p>
<p>Final report</p> <p>o Neid (if VoU h1>:t mo:e time you would)</p>		

DESIGNING A SOLUTION & DEVELOPMENT

April 2013 Final Presentations

Project Name:

check Engine light

Project Step	Rating (1 to 5) 5 is best	Comments
<ul style="list-style-type: none"> ❖ Problem statement ❖ Background of Problem 		clear and concise scholarly articles - yes!
<ul style="list-style-type: none"> ❖ Validation of the problem <ul style="list-style-type: none"> ○ Experts ○ Patents/Existing Products ✓ Survey or Consumer Input 		
<ul style="list-style-type: none"> ❖ Possible solutions <ul style="list-style-type: none"> ○ Solutions considered ○ Brainstorming process ○ Solutions not considered for further development and why 		
<ul style="list-style-type: none"> ❖ Choice of optimum solution <ul style="list-style-type: none"> ○ Design Criteria/specifications (prioritized, measureable) ○ Design matrix ④ ○ Feedback from experts and/or consumers 		Great job describing why you choose your final 5 ideas!
<ul style="list-style-type: none"> ❖ Design and optimize <ul style="list-style-type: none"> ○ Sketches of best solution ○ Materials chosen and why ○ Math/Science principles 		
<ul style="list-style-type: none"> ❖ Prototype development <ul style="list-style-type: none"> ○ Photos, sketches, CAD and/or video ○ Refinements, changes made as prototype developed ○ Bill of materials/parts list 		
<ul style="list-style-type: none"> ❖ Testing of prototype <ul style="list-style-type: none"> ○ Photos, data, graphs, Inventor analysis ○ Relate back to design specs 		
<ul style="list-style-type: none"> ❖ Final Design <ul style="list-style-type: none"> ○ What would change? ○ What will actual product look like, be made from, etc.? 		Good changes, logical thinking and great the flow of design
<ul style="list-style-type: none"> ❖ Next steps (if you had more time you would...) 		
<ul style="list-style-type: none"> ❖ Sources/Acknowledgements 		

G Energy

ENGINEERING DESIGN & DEVELOPMENT

April 2013 Final Presentations

Project Name: Clock Engine Light

Project Step	Rating (1 to 5) 5 is best	Comments
❖ Problem statement	3	
❖ Background of Problem		
❖ Validation of the problem <ul style="list-style-type: none"> o Experts o Patents/Existing Products o Survey or Consumer Input 	5	Question descriptive that 10% have lights on @ any given time well chosen support info
❖ Possible solutions <ul style="list-style-type: none"> o Solutions considered o Brainstorming process o Solutions not considered for further development and why 	4	wide range
❖ Choice of optimum solution <ul style="list-style-type: none"> o Design Criteria/specifications (prioritized, measurable) o Design matrix o Feedback from experts and/or consumers 	5	Good Specs Good Design Matrices
❖ Design and optimize <ul style="list-style-type: none"> o Sketches of best solution o Materials chosen and why o Math/Science principles 	3	Light in this area
❖ Prototype development <ul style="list-style-type: none"> o Photos, sketches, CAD and/or video o Refinements, changes made as prototype developed o Bill of materials/parts list 	4	Good Refinement Process What clock on participant how much effort + design testing test
❖ Testing of prototype <ul style="list-style-type: none"> o Photos, data, graphs, Inventor analysis o Relate back to design specs 	5	Well Done
❖ Final Design <ul style="list-style-type: none"> o What would change? o What will actual product look like, be made from, etc.? 	3	
❖ Next steps (if you had more time you would...)	4	
❖ Sources/Acknowledgments	4	

ENGINEERING DESIGN & DEVELOPMENT

April 2013 Final Presentations

Project Name: *Check engine light*
Alicia + Danny

Project Step	Rating (1 to 5)	Comments
<ul style="list-style-type: none"> ❖ Problem statement ❖ Background of Problem ❖ Validation of the problem <ul style="list-style-type: none"> ○ Experts ○ Patents/Existing Products ○ Survey or Consumer Input 	5	<i>A bit light handed on explanation, I was busy with the last sheet</i>
<ul style="list-style-type: none"> ❖ Possible solutions <ul style="list-style-type: none"> ○ Solutions considered ○ Brainstorming process ○ Solutions not considered for further development and why 	5	
<ul style="list-style-type: none"> ❖ Choice of optimum solution <ul style="list-style-type: none"> ○ Design Criteria/specifications (prioritized, measurable) ○ Design matrix ○ Feedback from experts and/or consumers 		<i>A good merging of the two ideas</i>
<ul style="list-style-type: none"> ❖ Design and optimize <ul style="list-style-type: none"> ○ Sketches of best solution ○ Materials chosen and why ○ Math/Science principles 		
<ul style="list-style-type: none"> ❖ Prototype development <ul style="list-style-type: none"> ○ Photos, sketches, CAD and/or video ○ Refinements, changes made as prototype developed ○ Bill of materials/parts list 		
<ul style="list-style-type: none"> ❖ Testing of prototype <ul style="list-style-type: none"> ○ Photos, data, graphs, Inventor analysis ○ Relate back to design specs 		<i>Very interesting test to verify tens away from hand</i>
<ul style="list-style-type: none"> ❖ Final Design <ul style="list-style-type: none"> ○ What would change? ○ What will actual product look like, be made from, etc.? 		
<ul style="list-style-type: none"> ❖ Next steps (if you had more time you would...) 		
<ul style="list-style-type: none"> ❖ Sources/Acknowledgements 	5	