Element K: Reflection on the design project

Project Name: The Check En	gine	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	Goodjob softing up the scope of a project and softing 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	

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 stake holders. 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

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Comments
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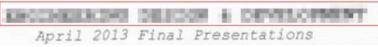
Sources/Acknowledgements



April 2013 Final P esentations

Project Name: $O(1 \quad (.J \cdot ..., (... \quad U \le .ti1))$

Project Step	Rating (1 to 5) 5 is best	Comments
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Possible sotoons Solutioris com:aciered eramst(YITIIng process Soh.1t1ons not c:nnsidered tor further c:ie.elo_lent anc: "'ny Sheegi	(<u>j</u>	
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Project Name:

check Englie light

Project Step	Rating (1 to 5) 5 is best	Comments
Problem statement Background of Problem		clear and original controls - yes!
Validation of the problem Experts Patents/Existing Products Survey or Consumer Input		
Possible solutions Solutions considered Brainstorming process Solutions not considered for further development and why		
Choice of optimum solution Design Criteria/specifications (prioritized, measureable) Design matrix Feedback from experts and/or consumers		Great job describing why you choose your final 5 ideas?
Design and optimize Sketches of best solution Materials chosen and why Math/Science principles		
Prototype development Photos, sketches, CAD and/or video Refinements, changes made as prototype developed Bill of materials/parts list		
Testing of prototype Photos, data, graphs, Inventor analysis Relate back to design specs		
 Final Design What would change? What will actual product look like, be made from, etc.? 		Good changes, logical thinking and great the flow of design
 Next steps (if you had more time you would) 		
♦ Sources/Acknowledgements		

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April 2013 F	inal	Presentations
Project Name: Chack Engine	lyh	t
Project Step	Rating (1 to 5) 5 is best	Comments
Problem statement Background of Problem	3	4
Validation of the problem Experts Patents/Existing Products Survey or Consumer Input	5	Lovestian description that 10% have lights on @ any quentine well chosen support into
Possible solutions Solutions considered Brainstorming process Solutions not considered for further development and why	4	wide range
Choice of optimum solution Design Criteria/specifications (prioritized, measureable) Design matrix Feedback from experts and/or consumers	5	Good Gares Good Deagon Matrices
 Design and optimize Sketches of best solution Materials chosen and why Math/Science principles 	3	light in this area
Prototype development Photos, sketches, CAD and/or video Refinements, changes made as prototype developed Bill of materials/parts list	Ц	Good Retinement Process & What check on participant courtry
 Testing of prototype Photos, data, graphs, Inventor enalysis Relate back to design specs 	5	Well Dine
 Final Design What would change? What will actual product look like, be made from, etc.? 	3	
 Next steps (if you had more time you would) 	4	
♦ Sources/Acknowledgements	И	

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ENGINEERING DESIGN & DEVELOPMENT

April 2013 Final Presentations

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