Hot Car Emergency

Deliverable C: Design Criteria

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Introduction:

The target of the deliverable is to expound a list of design criteria and rank them in terms of priority and benchmark existing parameters. Following that, determine the target specifications which are used as design foundations, which can be adhered to for initial prototypes until additional information or necessary changes are made during the design process.

Initially, based on the interpreted needs, a robust design criteria, along with ancillary requirements such as constraints and metrics is realized and documented. Benchmarking each constraint and metrics is done to set the range of acceptable results to be achieved as an end result. Comparisons will be made between 3 existing products in the market to evaluate the current scenario and provide us an insight as to what to expect when creating an appealing alternative. It also serves as design goals that can be accomplished in the design process.

Design Criteria:

Table 1: this table lists the interpreted needs and translates them into specifications for the design criteria.

#	Interpreted Needs	Design criteria
1	Beeping noise/ broadcasting message like an amber alert.	Get the attention of people in the area but so as to be annoying
2	Cheap to make, build and install	Cost effective
3	Can be fitted in any car/bus without disrupting the system.	Small (L x W x H)
4	Alarm should not be alarming to the child, and no extreme damage to the car.	Alarm that is more loud on the outside of the car or one that only appears on phones like an amber alert so as not to cause the child trauma or more fear
5	A simple app that syncs up to your car and sends alerts.	A companion app to go with the device (Android/iOS)
6	Integrated battery that can be rechargeable and lasts long.	Good battery (mAh)
7	Can only be installed by certified mechanics and engineers.	Safe and secure so that people know that these are always properly installed and working 100%m of the time

Requirements:

The final product needs to be simple to operate so everyone can figure it out. It should be as cheap as possible and installable, meaning it can be bought at any store and installed by a professional as it has to be properly functional or else the kid's life is at risk. Therefore, the battery has to be rechargeable. Finally and most importantly, the product has to be loud enough to inform others about the forgotten child but not extreme enough to panic the kid.

Constraints:

One of the constraints for our Hot Car Emergency project is time, we don't have all the necessary materials to build our design nor finalize it as of now and we do not have all the experience we may need in order to execute our plan. We only have two months to finish our project so timing is one of our top priorities with regards to material and experience. We also need to make it as cheap as possible while simultaneously satisfying all of our customer's needs.

Benchmarking:

Table 2: This table lists the design criteria of the existing products.

Specifications	**Products**		
	General Motor's Rear Seat Reminder System	Sensor safe	Drivers little helper
LxWxH (mm)	4652x1843x1661[1]	710x440x640 [2]	25.4x25.4x25.4 [3]
Item weight (lb.)	3801[1]	30 [2]	0.131[3]
Price (USD)	~6,988 [1]	302.69 [2]	54.34 [3]

Conclusion(Elijah):

In conclusion, we have gone over the interpreted needs and made the specifications for the design criteria based on the interpreted needs, narrowed down the requirements for the Hot Car Emergency to be simple, specific and cheap. We have determined the different benchmarks for pricing, dimensions and weight as well as our main constraints for our project.

Bibliography:

[1] "GMC," *GMC pressroom*. https://media.gm.com/media/ca/en/gmc/vehicles/terraindenali/2018.tab1.html
[2] "cybex," *cybex*. https://cybex-online.com/en-en/sensorsafe
[3] "Drivers little helper." https://www.walmart.com/ip/Driver-s-Little-Helper/183628313

Wrike link: https://www.wrike.com/open.htm?id=758826332