Hot Car Emergency

Deliverable B: Needs identification and problem statement

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Abstract:

The document covers the various client needs and preferences for creating the ideal hot car alarm system. With the needs in a table, a problem statement was created and existing products were benchmarked. Finally, a target specification was set to start the design and creation of the product.

Introduction:

In this document, we will examine and highlight the needs of the Hot Car Emergency and reveal a problem statement. Our client requires us to be able to identify, using an installable device, whether a child is in a car, alert others of the child and keep the child alive until help has arrived. This device should be fully functional, easy to install, inexpensive and helps ensure the safety of the child. We will further discuss the needs of the Hot Car Emergency and formulate a problem statement accordingly.

Client statement and interpreted needs:

Table 1: this table lists the different needs mentioned, interprets them and ranks them depending on their importance.

Client Statement	**Interpreted Needs**	**Ranking**
To alert nearby people/authority about locked child/pet	Beeping noise/ broadcasting message like amber alert	5
Affordable	Cheap to make, build and install	4
Compatible with all car models	Can be fitted in any car/bus without disrupting the system.	5
Do not panic kid	Alarm should not be alarming to the child, and no extreme damage to the car.	2
Easy to use	A simple app that syncs up to your car and sends alerts.	4
Rechargeable	Integrated battery that can be rechargeable and lasts long.	3
Installabled by professionals	Can only be installed by certified mechanics and engineers.	4

Alerting others, taking action, and being compatible with all car models are all aspects related to the functionality, anything affecting the functionality of the product is critical and must be included in the final product. Affordability, simplicity, and installed by professionals are desirable but do not affect the functionality of the product, hence, they are not as prioritized. Having a rechargeable product and keeping the kid calm both improve the functionality of the product but do not affect it, and therefore, satisfying them is not a priority but is encouraged.

Problem statement:

We need a device that is cheap and easy to use, is compatible with all vehicles, detects forgotten children and finally, alerts parents and passers by.

Benchmarking:

Table 2: This table discusses the existing products in the market and whether they meet our client's needs.

Product	**alert**	**Take action**	**Compatible with all car models**
Sensorsafe	1.Lets the driver know if there is a child in the car seat after the car has been turned off. [1] 2. Notify emergency contacts if no action has been taken.[2]	No.	No, only works with newer car models. [2]
General Motor's Rear Seat Reminder System	No, it cannot detect if there is someone in the car, only reminds the driver to check the back seat. [1]	No.	No, comes built in certain car models.
Driver's Little Helper Sensor System	1.If the driver does not respond to the notification it sends an email and text to emergency contacts. [1]	No.	Yes, but not for school busses.

There are numerous existing products to help prevent this problem, but none of them are equipped to solve it when it takes place, which is one of the main needs of our client: rescue the kid. Furthermore, a great deal of them come pre-installed in car seats or cars which goes against our client's need: compatible with all car models and makes it less affordable.

Target Specifications:

We need to have enough battery to sustain long periods without charging it, preferably rechargeable. The app must be easy to navigate so the user does not waste time figuring out how the app works in an emergency situation. The sensors must be accurate enough to have a success rate of 99.99 percent accuracy. It needs to be as cost efficient as possible, it should be as affordable to all customers across the world. It should sense if there's a person in the car accurately, and the mobile notifications should be loud enough for the user to take notice of it. It must be an installable device rather than an inbuilt feature.

Conclusion:

In conclusion, the client's needs are summarized and tabulated, facilitating the fabrication of a problem statement and setting a baseline for the expected outcome of the project. To start off after the client meet, the existing market was thoroughly researched to find out what has been tried and what is missing when referencing with the client's need statements. Next, using the metrics from the benchmarking section, a target specification was created to set an outline of the different parameters needed to be solved during the design process.

Bibliography:

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