

Project Deliverable B: **Need Identification and Problem Statement**

GNG 1103 – Engineering Design

Faculty of Engineering – University of Ottawa

Objective:

Empathize with your client and truly understand their problems, limitations, frustrations, desires, and needs. Translate their statements into a list of interpreted needs. Then, organize and prioritize their needs and formulate a problem statement. Reflect this information as a team to determine whether you are actually “solving the right problem”.

During the first meeting and interview, our client emphasized that children dying in locked cars due to heat strokes and carbon monoxide poisoning is not only a persistent problem in his country, UAE, but also a world-wide concern of parents and guardians. Based on our group's discussion, the client's needs are listed from the highest priority to the lowest.

First of all, the client mentioned that notifying parents and guardians and avoiding children's deaths is of the utmost importance. The priority will be children's safety and this will be preferably done by alerting parents and guardians through a linked device or an application.

Next, we assume that potential consumers have no engineering background; thus the device should be simple and easy to install. Currently, only Korean manufactures, such as Hyundai, KIA and Genesis, install ultrasonic sensors that can detect movements inside a vehicle, but they are not standard on all models. Therefore, we need to create a universal system that is compatible with any car model.

If a tangible device is installed in the car, it should be able to withstand harsh weather conditions. It should not only withstand UAE's hot and dry environment but should also properly function in cold temperatures or any given weather condition.

The client does not want wearable devices on children such as bracelets or necklaces that track their location. The solution should be something that can be installed in any type of vehicle, such as a school bus. Alerting not only parents but also any person near the car could be the solution to the problem.

Given the high living standard of UAE citizens, potential consumers would be able to afford the solution at any reasonably-set price; therefore, there is no fixed amount of budget for a final product. However, the prototype should not cost more than \$50 CAD.

We also need to ensure not to frighten children: therefore, applying physical force on windows and doors is not recommended. While a help/dispatch is on the way, it would be nice to entertain children to calm them down

In conclusion, there is a need to design a simple and easily-accessible device or an application to notify parents and guardians to get children or pets out of a locked car without making any physical or software modification in the car. In the future meetings, the size and the aesthetics of a device and the deadline of the prototype and the final product should be clarified.