Needs Identification and Problem Statement – Group 12

Now that we have met with Shabodi for the first time, being introduced to their problem in a much more comprehensive and interactive manner, we have been able to parse the raw data we gathered during their presentation and subsequent question period in order to establish, categorize, and prioritize all of the needs which they have for their restricted zone alerting project request, as well as to create a succinct problem statement which will help to guide our ideas in future stages of the design thinking process.

In terms of Shabodi's needs, we have decided on 3 decreasing levels of importance: necessary, important, and nice-to-have. We will use these levels to guide our work in the future, and will generally only move to any of the needs in the 2nd and 3rd levels once we have completed those in the 1st and 2nd, respectively.

In terms of necessary needs, we noticed Shabodi frequently mention, as well as put a lot of emphasis on, making use of at least 2 Shabodi APIs in their development sandbox; being network-aware; creating a unique experience; using a private network; and being adaptable to future needs. For the most part, these 5 needs, as well as those in the lower 2 levels, are broad enough that they will not stifle creativity in the design stage, but are specific enough that they will be useful when determining design criteria.

Subsequently, our important needs consist of focusing on function rather than user interface (UI), as the product is made for enterprises instead of the general public; striving for as little lag as possible; being cloud-ready; and being demonstratable. While all these needs are important to Shabodi, as the name of this level suggests, they take a back seat to those in the 1st level, as no combination of these needs could amount to a worthwhile product without the framework of the necessary needs.

Finally, our nice-to-have needs include saving Shabodi's client companies money in the long term; creating a utilitarian user experience (UX); automating any tasks which can be automated; and making a system which will function abroad with different network configurations and capabilities. While the raw data we gathered from Shabodi did include references to all of these needs, they were all only mentioned once or twice, and were not given the same emphasis as those in the prior 2 stages, so they will only be considered if the product already functions according to Shabodi's main requests and we have time to further improve it.

As a whole, we aggregated these needs into one short, specific, and sexy problem statement: Create a product for Shabodi to provide its client companies with a UE zone-restriction device that is unique, precise, and can be iterated. This product must be network-aware and have low latency with the goal of maintaining human safety in the workplace.

While we feel that we comprehend, for the most part, the product we have been tasked with making, it is still important to compare our conceptions and ideas with products which already exist. We found 4 similar products, the links to which can be found below:

https://www.dji.com/ca/flysafe/introduction

https://www.neurallabs.net/en/applications/traffic-infractions/pedestrian-zone

https://ubudu.com/solution/safety-zone-access-control-solution

https://sigur.com/en/features/capacity_limit/

With these products, we used technical benchmarking to determine some further needs for ourselves which, while they were not specified by Shabodi, will be important to consider if we want our product to realistically be able to compete with those already on the market. These include using different types of zones, such as a restricted zone, where no movement is allowed, and a speed limited zone where the user equipment (UE) can move, but only at a slower speed; an alert trigger from a UE or worker device to prevent an accident if the two come too close together; the ability to track data and monitor the level of risk in different areas around the workplace in real time; and having a capacity limit within certain zones to reduce crowding and increase safety. For our project, we will primarily focus on achieving Shabodi's specified needs, but we will also attempt to make a realistically viable product by aligning it with these industry standard benchmarks.

Currently, we feel that we have more than enough information to begin working on our project, but in order to make it the best that it can be, we hope that Shabodi, or other similar sources, can answer some questions we still have about the functionality of their request. For example, the locational contexts will be involved in our restricted zone alerting product; whether the product should be more tailored to security or safety; and the type of locational tracking, be it GPS or other, that should be used to accomplish Shabodi's specified needs.

In conclusion, we feel prepared to undertake Shabodi's restricted zone alerting project now that we have identified and organized their needs from our gathered raw data, summarized those needs in a problem statement, and researched what competing products have already accomplished. While we do still have questions for Shabodi, they will not prevent any current, preliminary work, and we will make sure to get them answered before they cause us any issues. This product is integral, both in terms of security and safety, in any workplace with moving machinery, and we hope to make a product which innovatively and efficiently helps Shabodi's client companies prosper in a technology-driven future.