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Final Project Objective 3. - Requirements Document for One Piece of Functionality

Analysis of Software Systems

11/30/20

After going back and properly analyzing potential requirements listed in the system request of the project management plan document, the project manager was able to collaborate with the analysts and small management team leaders as well as the board of directors as a group and individually, with special time being made to analyze Brad Messner’s vision for this project as well. By analyzing the project management plan and other documents made prior to this one and analyzing interviews to high-level leadership between the business and IT sectors for this project and within Seventeen Solutions LLC, this resulting document lists all of the requirements associated with the feature of the to-do list within the holographic interface portion of the HIPA project. This will contain an exhaustive list of functional as well as nonfunctional requirements necessary for this specific feature prior to actual development. As development begins, and the project begins to take shape, this document will need to be continually updated along with the work plan by the project manager, in case new requirements become necessary for the performance of this feature within the project, or in case certain requirements were forgotten about or not prioritized as highly at this early stage in analysis.

While updating this document in the future, the project manager and analysts that can potentially contribute to this document as well must be painfully aware of scope creep, and how simplistic this feature, and the entire product is aiming to be for its first iteration. The dangers of scope creep have also been mentioned in the project management plan document, however this specific document is the first place where scope creep can make an impact on how this project is performed and if resources are being saved or wasted on it. This is one of the documents that takes precedence to establish the proper work flow, and therefore scope creep should be stopped at the door here.

As a small note before the requirements are listed, it worthy of mention to reiterate that the requirements that have been determined for this document are the first and earliest list of determined through multiple analysis methods by the project manager, namely interviews (with analysts, the board of directors, and Brad Messner), and document analysis. After the proper functional and non-functional requirements are listed, there will be a section at the end of this document detailing how different analysis techniques will need to be employed in further iterations of this and other requirements documents. Some of the analysis techniques will do a better job of focusing requirements into a list that will better reflect the end product of HIPA 1.0. This is due to the fact that some of these analysis techniques cannot be performed until legitimate development has begun, and because the project manager will be working with an already created requirements document (this current one), and can understand and specialize the requirements for this feature and other features much better after doing it once. Therefore, this requirements document will have a long road ahead of it beyond this initial analysis. However, the forms of analysis and a prediction as to how it will progress is included in the final section of this document.

* **Non-Functional Requirements for Holographic Interface To-Do List**
  + An upgrade for the iPhone camera is made available and the upgrade is performed on any phone that has the HIPA mobile application installed so that the iPhone’s projection ability is upgraded to fit the needs of the holographic interface
  + Upon tapping a button that is specifically labelled within the mobile-version, the holographic display activates when a user's iPhone is placed screen-up.
  + The display of holographic image(s) is of proper size, as determined by the user in the mobile application settings, and is intuitively designed so that the users can see and process the contents of their to-do list while being easy on the eyes of users as well.
  + The initial hologram that is displayed for the to-do list is simply a tall-rectangle shape that lists all upcoming tasks for the current day, in timed order. There are other buttons located on this hologram that are mentioned below for the user to interact with the contents of the to-do list and their respective hologram(s)
  + Users can utilize the HIPA Grip tool in order to interact with the to-do list hologram(s) by resizing the holograms and moving them throughout the available area that holograms can take up based on the iPhones ability to display
  + Users can utilize the HIPA Grip tool in order to interact with the to-do list hologram(s) to view tasks and interact with them in a variety of ways, the exhaustive list of all of the different ways a user utilizes the list and its respective tasks are listed below
    - Add task - this is done by tapping the plus shaped button on the to-do list hologram and speaking the name of a new task after a new hologram popup is displayed, prompting the user to talk.
    - Edit task - this is done by tapping a pencil shaped button located next to the name of each task within the to-do list hologram. This feature is also prompted by voice, and is only used to change the name of the task.
    - Delete task - this is done by tapping the skull shaped button also next to the name of each task within the to-do list hologram. There is a secondary pop-up that will be displayed confirming that this is the action that the user wants to perform before deleting the task.
    - Add/Replace time - this is done by tapping the alarm clock shaped button next to the name of each task within the to-do list hologram. When this option is selected, three holographic scroll bars appear for the user to scroll through using the HIPA Grip to select the hour, minute, and AM or PM associated with the task they’ve selected. Once this time is confirmed by pressing a check mark button at the top-right hand corner of the scroll bars, the scroll bars will disappear and a notification will automatically be set for that time (notifications do not appear in the holographic interface, only the mobile and watchOS versions). Automatic notification settings can be changed in the setting of the mobile-only version of the app.
      * If there is already a time assigned to this task, adding a time will replace the old time.
      * Regardless of if there was a previous time assigned to the task, the to-do list hologram will be updated in order to list all of the current day's tasks in chronological order. If adding a time changes this order, the main to-do list hologram will be updated in real time.
      * If there is no date assigned to this task, it is assumed that the task is scheduled for the current day for notification purposes.
      * If there is no time assigned to a task, no notifications will be given. This can also be changed in the notification settings of the mobile only application.
    - Add/Replace Date - this is done by tapping the calendar shaped button next to the name of each task within the to-do list hologram. This form of interaction operates extremely similar to the add/replace time feature, the only difference being that the three holographic scrollbars that pop up prompt for the month, day, and year for the task. The scrollbars will default to the current day.
    - Complete task - this is done by tapping the empty box shaped button at the far right of the rectangular panel for each task within the to-do list hologram. Doing this will place a checkmark within the empty box, and that current task will leave the main to-do list hologram, and a new rectangular hologram will show up that lists the entirety of completed tasks for that day. The user can exit out of this hologram by tapping the “X” button at the top right of the hologram. The default opening of this hologram can also be configured in the mobile only version settings.
  + The user can exit the entire holographic interface by tapping their physical iPhone screen with the HIPA Grip index finger.
* **Functional Requirements for Holographic Interface To-Do List**
  + The proper software to support the processing power necessary to display the holographic interface is properly loaded into the iPhone, either through files that will interact with iOS within the mobile application, or by utilizing the Seventeen Solutions API to interact with iOS in the form of a software update.
  + Upon booting the holographic interface, the database models for each holographic model tracks the polygon count, size of model(which will affect the polygon count and the logic to do so will be incorporated into the backend), and the location of all holographic models within the holographic interface (by their x,y, and z coordinates) in real time. Tracking algorithms will be programmed into the backend, and the real-time tracking of each hologram across the “screen” will be used to determine which hologram the user is interacting with by using the HIPA Grip, if any.
  + Based on the x, y, and z coordinates being tracked and monitored for each hologram (along with a boolean value indicating if the hologram is even being displayed at the given moment), there will be a variety of actions persisted to the database based on how a user is interacting with their to-do list, all of which are listed below
    - If a task is added, and new instance of a task is added via a query to the database in the backend
    - If a task is deleted, the specific instance of a task is deleted via a query to the database in the backend
    - If a task is edited in any way (meaning a name change, adding or changing a time, adding or changing a date, or if a task is marked as completed), then the resulting data field associated with the selected task (such as name, time, data, completed) will be updated via a query to the database in the backend.
    - Upon completion of any task, that completed task will be added to the database table of completed tasks via a query in the backend.
      * There will not be any other form of data tracked as far at the holographic interface is concerned. As previously mentioned in other documents, the purpose of this application is to establish this technology as operational. Future versions of this application will be more data-driven.

**Analysis:**

Once this entire list of requirements for the specific functionality of the to-do list holographic interface has been integrated into the work plan, and deadlines have been assigned to each individual team that has a hand in developing each requirement and making it functional and of a high quality experience for the customer, then further analyses can be taken to ensure that these requirements should remain, and potentially change them or add new requirements that will ensure the vision of this application as previously defined by the sponsors in a more efficient and customer-centric manner. For example, different types of problem analyses will need to be carried out in order to properly learn from any issues that arise during the development process. These problems during development can be a result of a multitude of items working individually or together to create problems. Technological barriers, individual employee issues as part of human error or dysfunction are some of the many different reasons that these problems could arise. In order to learn from these, performing a root cause analysis would be the best possible way to understand the inherent issues behind a problem with these requirements, so that changes can be made at the top executive level to eliminate any more problems associated with the issue in question. After performing a root cause analysis, partaking in an outcome analysis, technology analysis, and activity elimination can help the analysts and their teams working toward each individual requirement identify ways to increase their productivity levels. While individual teams conduct their analyses (either along with, or separated from the project manager, because both can provide unique and helpful feedback) for the requirements they are working on as well as with their work flow as a whole, they may be able to determine new requirements, or necessary updates to current ones that the project manager may not be aware of entirely. Therefore by properly conducting different types of analyses and applying the results in a manner that drives progress, requirements will almost certainly change over time, but will be to the benefit of the end product, as long as scope creep is properly monitored.