Saurabh Verma
COMP 5470
10/30/2019
Project Proposal

Overview

One of the defining, and perhaps the most dominant, attributes of a modern, 21st-century workplace environment is the use of Agile methodology to break large projects into smaller, accomplishable tasks. This has allowed teams of all sizes to efficiently use their resources to meet tight deadlines. One implementation of this methodology is Scrum, which focuses on rapid iterations of a product.

Although Scrum may maximize a team's/individual's efficiency, it appears that its use outside of the "tech world" is minimal. This project aims to use Microsoft Hololens, an application of Augmented Reality, in order to bring this style of work to outside sectors.

Teams that utilize Scrum most often interact with a project tracker called the "Scrum Board." This chart, like any other "To Do" list, keeps track of items that:

- must "eventually be completed" (Backlog)
- must be completed immediately (To Do)
- are currently being worked upon (In Progress)
- have been completed (Done)

An individual generally plans for the next 2 weeks (categorized as a single "Sprint") and picks/completes a set of tasks in this duration. This creates a quick and an efficient cycle where the individual completes all items that are assigned to him/her.

Scrum can have a tremendous impact in competitive fields like Manufacturing, where being first to market is considered a key to winning the "race." While the nature of the work may not allow every individual to have a Scrum board available to them, the use of Augmented Reality can provide instant access to such charts, regardless of one's location or workplace environment. This results in real-time tracking of each task as it moves through its lifecycle.

Implementation

The implementation of this project will consist of building a virtual Scrum board in Unity. The data in the board will be sourced from a remote API server. This will allow the project to emulate a real-world setting. The following components will be designed:

- API server – Java server with a MySQL database will be created that contains data on each task
- Application – C#-based Unity project will be created for Hololens which takes the form of the application client
- Graphics – While the priority will be to complete a functional implementation across the frontend and backend, there will be an effort to utilize the gesture recognition capabilities of the Hololens to enhance the overall user experience

Scrum boards are expected to store the following information for each task (adjusted for Manufacturing domain):

- Name – Name of the task
- Description – Description of the task
- Type – What type of task is it (New Task, Product Recall etc.)?
- Priority – How urgent is this (P1, P2 etc.)?
- Status – What's the current status (To Do, Design, Planning, In Progress, Deployment, Done etc.)?
- Assignee – Who's currently working on it?
- Components – List of relevant tags for this item (e.g. "Design Changes", "Customer Feedback")

Conclusion

The purpose of this project is to bring the Agile methodology to non-software industries, such as Manufacturing. While minor changes may be made to accommodate the differences between Software Development and Manufacturing, the core system will remain the same. A focus will be placed on building a user-friendly interface for the Hololens client that displays Task information in a clean, non-cluttered manner.