|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Start | Finish | Author | Description | Reason | Version |
| 02/07 | 22/07 | Alex | Initial Draft of Operational Study | Complete production of feasibility study | 1.0 |
| 26/07 | 27/07 | Alex | Added conclusion and more sections | Study was lacking a finality to it | 1.1 |
| 02/08 |  | Alex | Revamp Operational Study with focus on each implementation | Previous study had too much redundant information | 2.0 |

**Introduction**

The operational feasibility study aims to cover and answer the following issues about the new system:

* **Process:**How the users will benefit from the new system and its processes. There are three main users: spectators, markers/scorers and the judge however the focus will mainly be on the spectators as different approaches do not affect other users.
* **Implementation**:  How much time, cost and/or other resources each approach will use.
* **Evaluation**: Whether the system can work and cover key goals covered in the project scope.

**Hardware Approach (Original)**

The original approach allows users to see a real-time scoreboard of the competition using their portable devices. It will use a custom server to allow users to connect to it and allow them to fetch and update information.

Process

The spectators stand to see the most benefit from this approach. They will be able to search for and track specific teams as well as the rankings for the entire competition. This approach has the most features for users.

Implementation

The cost of the server as well as the time it takes to develop the spectator and judge application makes this approach easily the most expensive.

Evaluation

While this approach completely covers scope, and has the most benefits for spectators, it will take the most resources to see completion.

**Cloud Approach**

The cloud approach functions similarly to the original but uses the internet and cloud servers instead of a physical server.

Process:

This approach has similar benefits to the original but requires the users to connect to the access points in the ASB stadium venue. Consequently, this means that the system’s speed and capacity could be limited by those access points.

Implementation

The system would take less time to develop and implement as there would be no need to program a server. Additionally, there is a massive decrease in cost as there would be no need to purchase custom hardware for a server and the costs of hosting a cloud server are negligible by comparison.

Evaluation

This approach has all the benefits of the original while taking less resources to complete. However, the system will be limited by the access points and bandwidth of the internet available at the venue. Furthermore, it does not meet the scope requirements of having a ready hardware capable of setting up the system.

**Physical Scoreboard with Cloud**

This approach replaces the user connecting to a server to view a scoreboard on their devices and instead uses a physical live scoreboard that will be placed in view of the spectators at the venue.

Process

While the spectators will be able to see how teams are faring in the competition, the ability to track specific teams will be removed. It will also be more limited as not every team will be able to be shown due to size constraints. An additional component to automatically scroll through the scoreboard will have to be introduced to compensate. Furthermore, the scoreboard may have an additional effect on the teams of the competition as they will be able to see other teams scores.

Implementation

Similar to the approaches above, there is a custom hardware or a cloud approach. The time and cost constraints are also similar. The hardware approach will cost much more to develop. The cloud approach costs less and because users do not have to connect to the access points in the stadium, this approach is less hampered by capacity and bandwidth issues.

In addition to this, this approach will take significantly less time overall to develop as there will be less to develop for the spectators side.

Evaluation

This approach has the least amount of benefits to the spectators compared to the other approaches and only covers the basics of the scope. However, it is the most feasible of the approaches and takes the least amount of time and cost to develop and implement.

**Scorer Option**

The system does not benefit the markers and it may even hinder those that are not adept at handling technology. In addition, the cost of supplying a device to each judge is very expensive.

An option to get around this is to have the scorers at the competition handle updating the system instead of the markers. This will eliminate the above disadvantages of the system as well as decrease costs of supplying and training the markers.

However, this may raise an additional concern. There are less scorers to update the system which may cause inconsistency in the scoreboard. A solution is to simply increase the number of scorers. However, because the system aims to be as simple to use as possible, this may not be an issue.