GNG 1103: Deliverable H

Prototype III and Customer Feedback

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Group 15
William Paltin (300060194)
Lexy Candler (300168915)
Mirko Onufrak (300247243)
Paige Petroskie (300158917)

Sponsor Elements Prototype

The two main goals of the prototype for the subsystem of the control panel controlling sponsor elements and sponsor bugs are to be as user-friendly and configurable as possible. The previous deliverable did not include links to Xpression files for full functionality of the prototype. In this final prototype, the Xpression server has been connected to the Dashboard prototype for full functionality. As seen in Figure 2 and Figure 4, buttons for selecting Xpression files (integer selection option) are added to each button configuration.

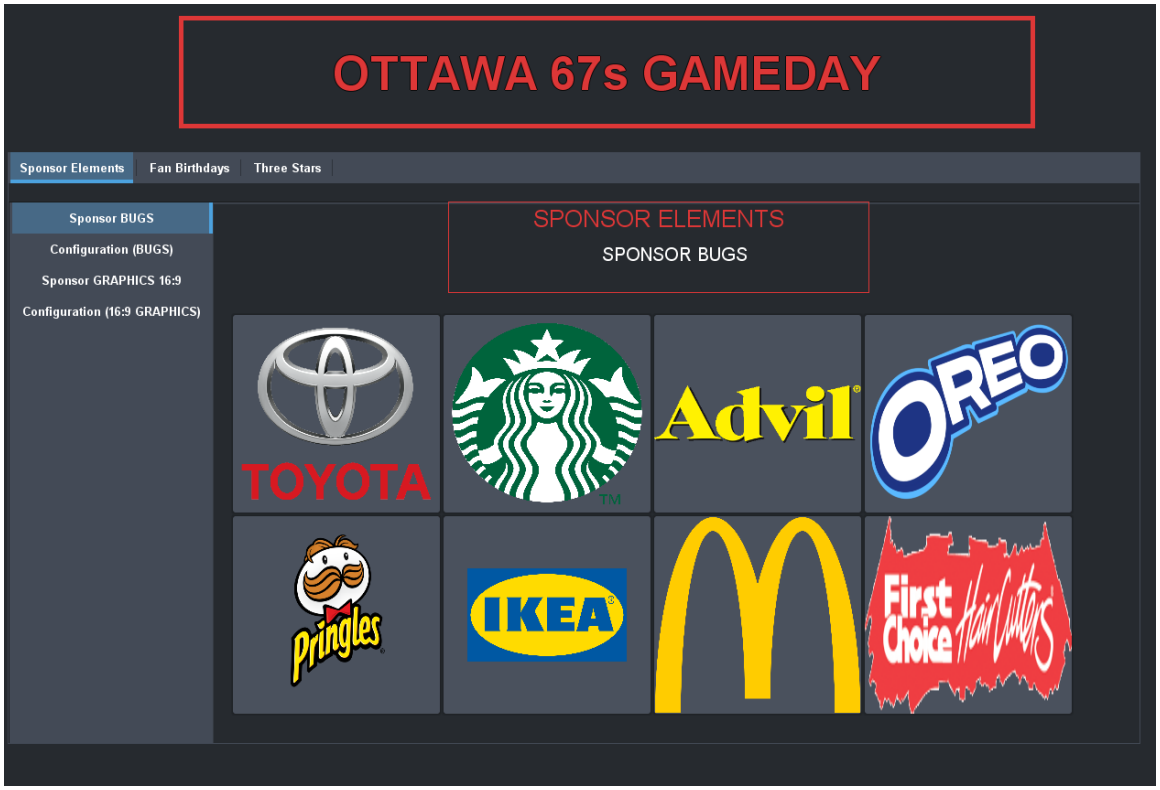


Figure 1. Control panel for sponsor bugs with example sponsors.

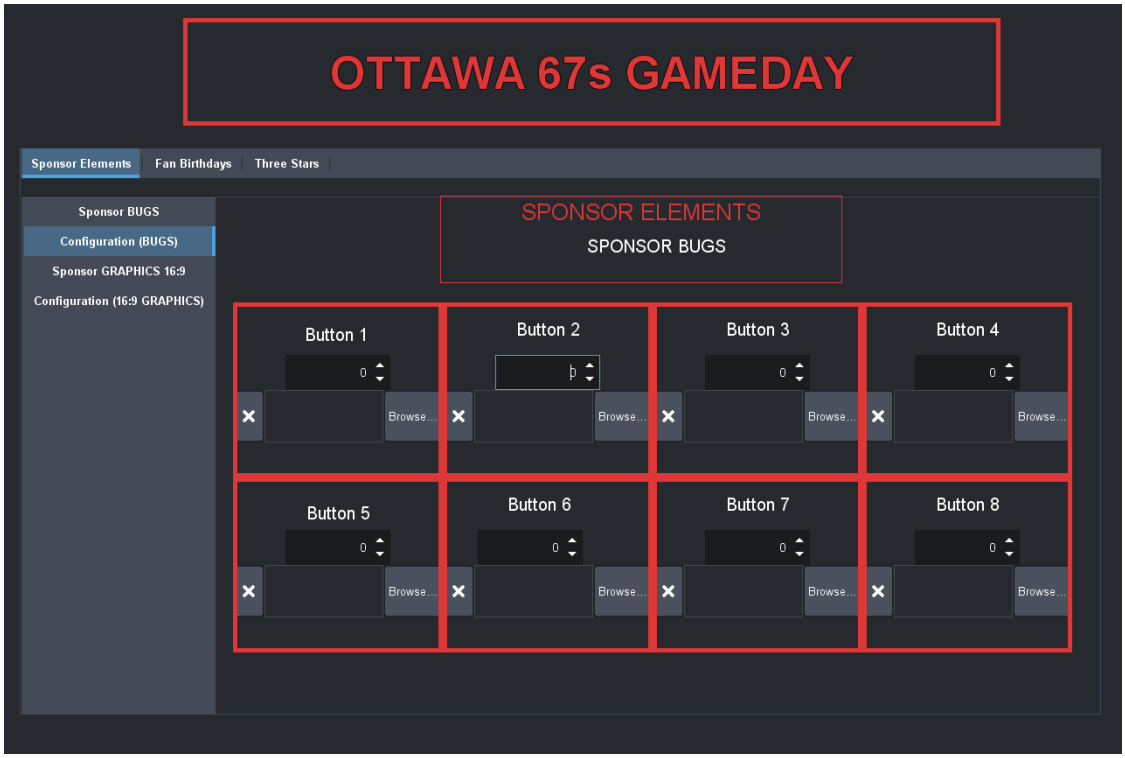


Figure 2. Configuration panel for sponsor bugs.

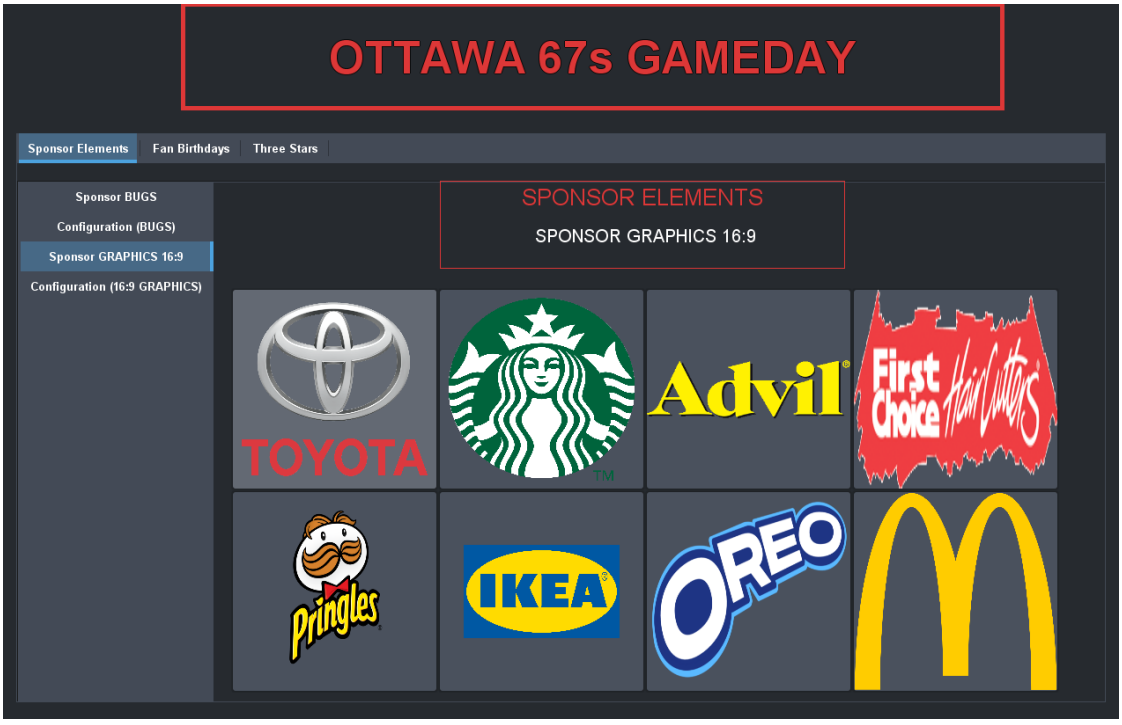


Figure 3. Control panel for full-screen sponsor graphics.

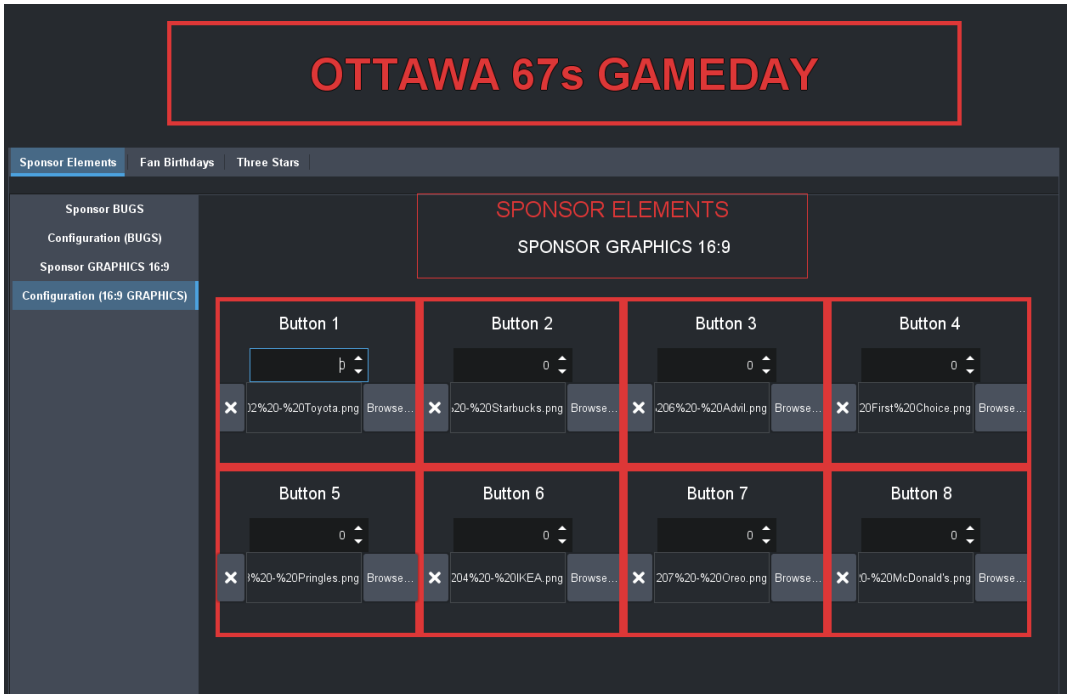


Figure 4. Configuration panel for full-screen sponsor graphics.

As outlined in the previous project deliverable, the test plan for the prototype was executed as follows:

1) Purpose of the test

The purpose of the testing is to ensure the prototype continues to maintain its functionality as it is refined based on user feedback, as well as optimise its efficiency.

2) Specific design concept

Specifically, this prototype test will ensure the interface is easily used once it is linked to Xpression. At this point, we will be able to time how long it takes a user to trigger a sponsor graphic on-screen. This will act as a measure of the design's efficiency.

3) Testing method

To test its effectiveness the team will put themselves in the user's shoes and analyze its efficiency with a physical prototype test using the control panel designed in Dashboard. We will time how long it takes to trigger a sponsor graphic on-screen once given the cue. Additionally, we will pursue further user and client feedback to ensure all needs are met.

4) Test performance

To perform further testing on the prototype, we will use the control panel while watching a sporting event. The time it takes to perform each task successfully (i.e. have the correct graphics display on the stadium screen) within a satisfactory timeframe will be analyzed. It is important that the graphics display on the stadium screen easily and very quickly.

Additional client and user feedback will be obtained. Based on more ratings out of 10, we will be able to analyze the best and worst parts of the design.

5) Measuring, observing, and recording results

Using a stopwatch, the time it takes for a number of users to execute each sponsor graphic function at the appropriate time during a sports game will be measured and recorded in a data table. Additionally, user and client feedback will be recorded, analyzed, and implemented in the design.

6) Interpreting results

The average time it takes for the graphics to appear on the stadium screen must be within 0-3 seconds of the sponsor "trigger" during the game to be satisfactory. If it takes longer than this to display the graphics on-screen, the design must be modified.

Stopping criteria:

1) The time it takes for the graphics to appear on the stadium screen must be within 0-3 seconds of the announcement during the game to be satisfactory.
2) The average user rating for each aspect (as outlined in Table 1) must be 9/10 or higher.

Fidelity: The testing will be of medium-high fidelity. Under ideal conditions, the team will be able to successfully replicate the conditions under which the operator will be using the Dashboard control panel during a sporting event by using it themselves while watching an actual sporting event.

After following this test plan, the following results were obtained:

Table 1. Total time from the cue, to pressing the button, to graphics appearing on-screen.

Trial	**Time (s)**
1	1.31

2	1.27
3	1.51
4	1.67
5	1.15
6	1.14
7	1.20
8	1.46
9	1.56
10	1.12
Average time	1.34

Table 2. Summary of user feedback from a sample size of 5 people for sponsor elements control panel prototype.

Aspect	**Rating out of 10**	**Feedback**
Configurability	10/10	● Clear and quick to use ● “Easily configurable, organized” ● Aesthetically pleasing ● Very user-friendly
User-friendliness	10/10	● Easy to switch between different panels ● Good feedback to the user about how it works ● Very good use of graphics on buttons
Aesthetics	9/10	● Good colour scheme ● Space could be used slightly better (i.e. fill in gaps) ● Organized, clearly labelled layout
Functionality	10/10	● “Not overly complicated” ● Executes functions well and easily ● Simple and clear
Average User Rating	9.75/10	

Seen in Table 1, the average time it took for executing functions on the control panel was found to be 1.34 seconds for a sample size of 5 users. This is less than the defined minimum time acceptable (3.0 seconds).

As seen in Table 2, user feedback improved from the last deliverable, giving an average rating of 9.75/10 for all aspects, which exceeds the minimum defined rating deemed to be acceptable.

Given these testing results that exceed expectations, the prototype is deemed to be more than acceptable.

Fan Birthday Prototype

For the prototype of fan birthdays the main goal was to create a subsystem that was easy to use and how names can be easily switched, added, deleted (more configurable). Fan birthdays had gone through multiple prototyping stages until being finalized in this last prototyping stage. One of the first prototypes of fan birthdays is shown below:

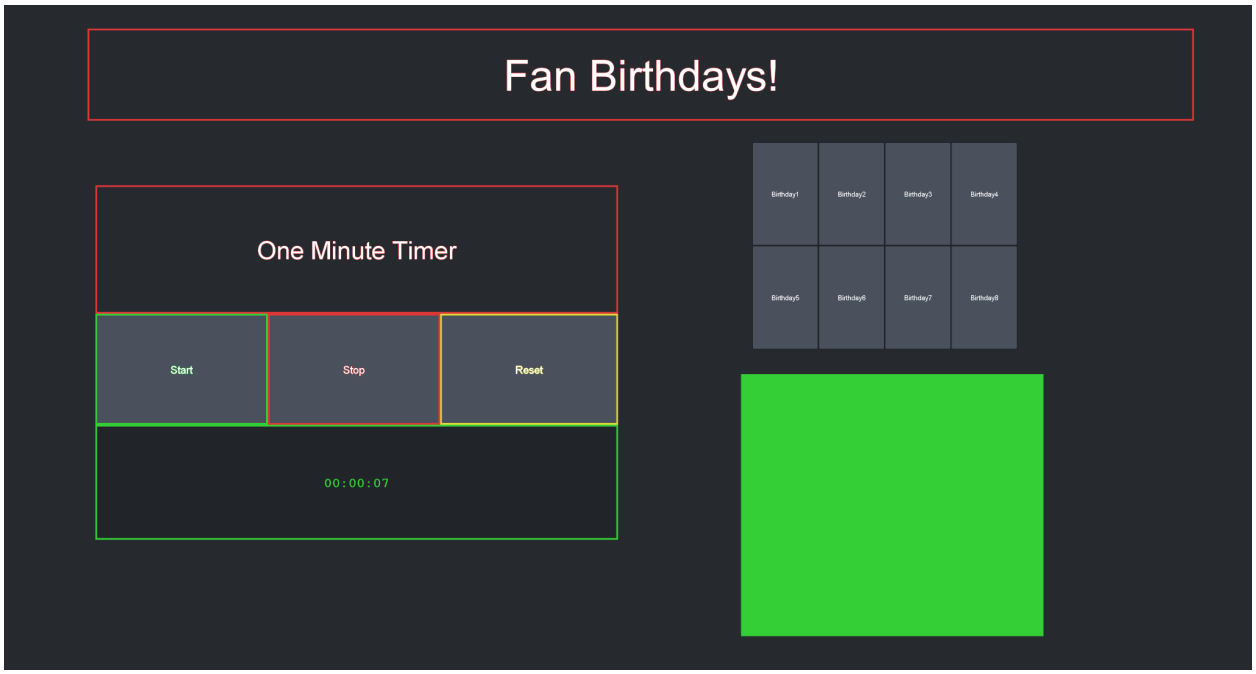


Figure 5: Progression of Fan Birthdays

After user testing, it was found that a new route needed to be taken to follow the user request of easy use as well as configuration. This prototype was easy, but required more

configurability. After multiple iterations the new and improved prototype has been teste and has data to support (from others who have tested the prototype) an ideal solution to the initial user problem. The final prototype has been linked to Xpression files to support the claim of functionality. The fan birthday configuration tab indicates the scroll option for selection of Xpression files also known as an “Integer option” to each button.

Figure 6: Scroll option for selection of Xpression Files

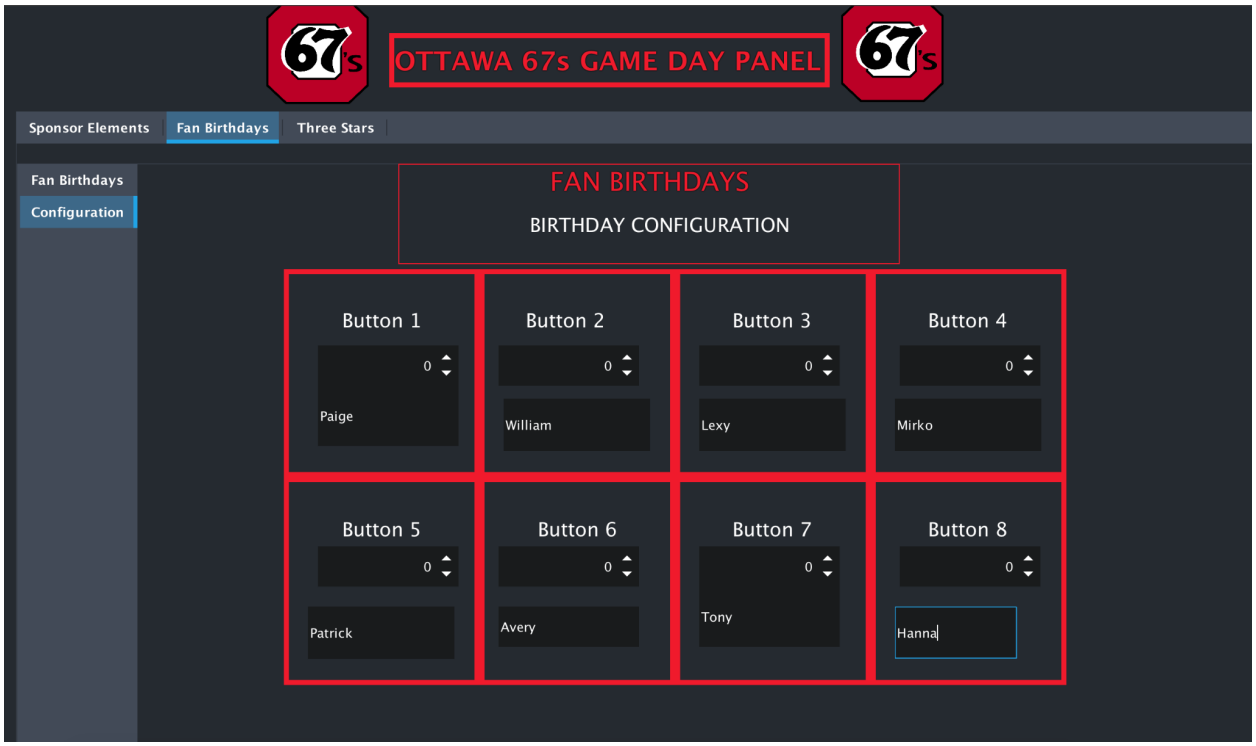


Figure 7: Easy configuration of Names for Fan Birthdays, automatically transferred to buttons

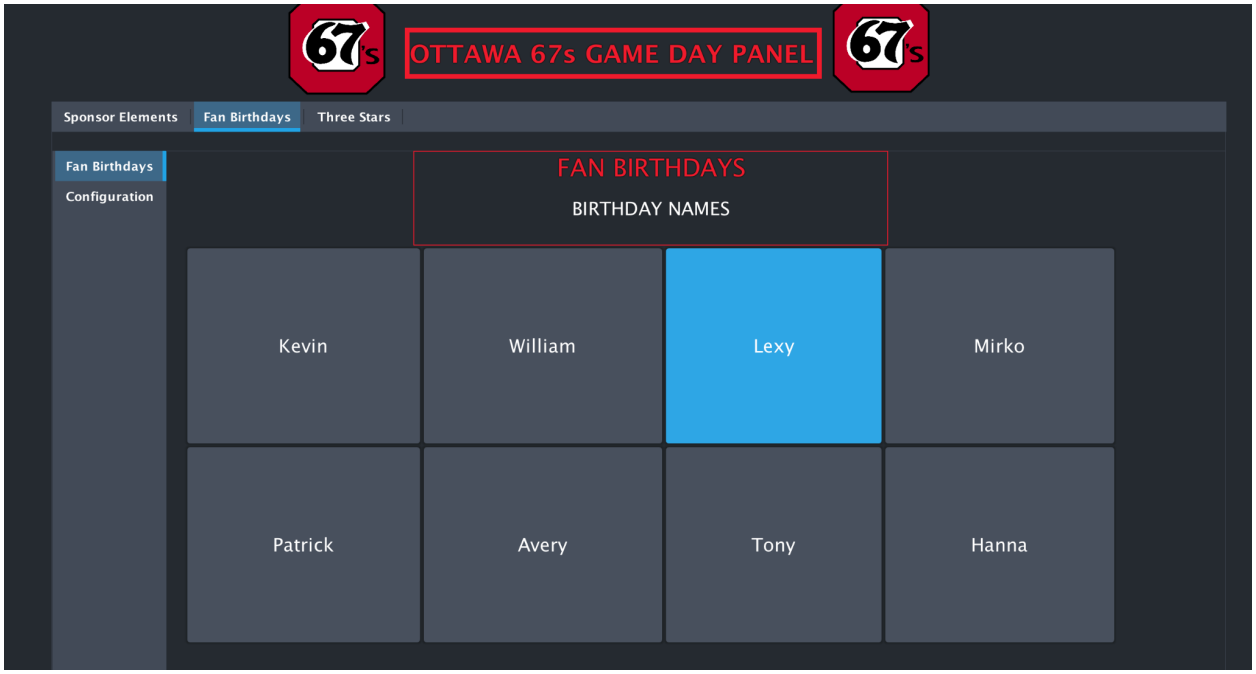


Figure 8: Visualization of buttons, names transferred from configuration tab on fan birthdays

The prototype now includes easy configuration of names if the Birthday now requires to be deleted, changed or a name needs to be added through the configuration tab. The name then transfers onto the button using coding and now can be visualized by the user whose name is being played at a certain time via the use of toggle buttons as shown above. The final prototype includes the required goal outlined in the first prototype: “birthday graphic containing an image and short birthday message which all play back to back with a set (configurable) duration.” Through Xpression the names and graphics can be played with ease as well as configured at any time during the game when required.

As outlined in the previous project deliverable, the test plan for the prototype was executed as follows:

7) Purpose of the test

The purpose of the testing is to ensure the prototype is following and executing the main goal including the functionality. For Fan Birthdays user feedback guided the prototypes into improvements to maintain the best possible outcome.

8) Specific design concept

The specific design concept includes the functionality of the final prototype following the initial user feedback. The main purpose is to have a fully functioning prototype that allows for projection of Fan Birthday names as well as graphics through XPression. When this occurs, a timer is used to measure the amount of time it takes to complete the names and upload them to XPression.

9) Testing method

To test its effectiveness the team will put themselves in the user's shoes and analyze its efficiency with a physical prototype test using the control panel designed in Dashboard. We will time how long it takes to trigger a sponsor graphic on-screen once given the cue. Additionally, we will pursue further user and client feedback to ensure all needs are met.

10) Test performance

To perform further testing on the prototype, we will use the control panel while watching a sporting event. The time it takes to perform each task successfully (i.e. have the correct graphics display on the stadium screen) within a satisfactory timeframe will be analyzed. It is important that the graphics display on the stadium screen easily and very quickly.

Additional client and user feedback will be obtained. Based on more ratings out of 10, we will be able to analyze the best and worst parts of the design.

11) Measuring, observing, and recording results

Using a stopwatch, the amount of time required to correctly enter names onto the buttons and project them onto XPression during the testing sport game was measured and recorded as shown below. Another method of observation and results would be user feedback including the configurability, user-friendliness, aesthetics, and functionality. The user feedback was also recorded into a table to indicate their rating as well as improvements/things well done!

12) Interpreting results

The average time it takes should be around 45 seconds to fill the names into the "Fan Birthday Configuration" tab, as well as put the first birthday into XPression. This would allow for the user to easily project any names in a short amount of time. Fifteen seconds is a good basis

of how long/much time it may take to complete the purpose of Fan Birthdays. If this takes longer, the prototype may need further modification based on how long it may take.

Stopping criteria:

3) The time it takes for the Fan Birthdays to appear on the stadium screen must be within 1 minute of the announcement during the game to be satisfactory.
4) The average user rating for each aspect (as outlined in Table 1) must be 9/10 or higher.

Fidelity: The testing will be of medium-high fidelity. Under ideal conditions, the team will be able to successfully replicate the conditions under which the operator will be using the Dashboard control panel during a sporting event by using it themselves while watching an actual sporting event.

After following this test plan, the following results were obtained:

Table 3. Total time from the cue, to filling in the names, to pressing buttons, and projecting graphics.

Trial	**Time (s)**
1	42.44
2	36.89
3	40.86
4	50.33
5	38.54
6	41.16
7	45.31
8	57.84
9	39.35
10	44.21
Average time	39.27

Table 4. Summary of user feedback from a sample size of 5 people for Fan Birthdays

Aspect	Rating out of 10	Feedback
Configurability	10/10	● Button names corresponding to each Fan Birthday are easily changed ● "Very neat" ● The user can easily configure any name if required ● User-friendly is very high
User-friendliness	9/10	● Use of toggle buttons allows user to easily see what Fan Name is selected ● Large buttons that are clearly labelled and easy to click very quickly ● Tabs are clearly labelled so that user can easily see which element is being used ● "Very simple and unique design"
Aesthetics	10/10	● AMAZING colour scheme ● Each tab section is clearly labelled ● "Very organized, and the simple design allows for the user to focus on only the functionality and not become distracted"
Functionality	9.75/10	● XPression link added for complete functionality ● Code correctly working, can be seen through typing the fan birthday name and then popping up on button ● "Love how it is an easy to use, and very simple functioning subsystem"
Average User Rating	9.69/10	

The requirements were all met from the outlined goals of the Fan Birthday initial meeting. The prototype is now functioning with an easily configurable subsystem working within. The goal of average user rating from a previous prototype of 7/10 was well exceeded with a final rating of 9.69/10! As well for the timing of less than one minute, the goal was exceeded at approximately 165 %.

With these goals being exceeded the prototype is now completed and ready for use within XPression.

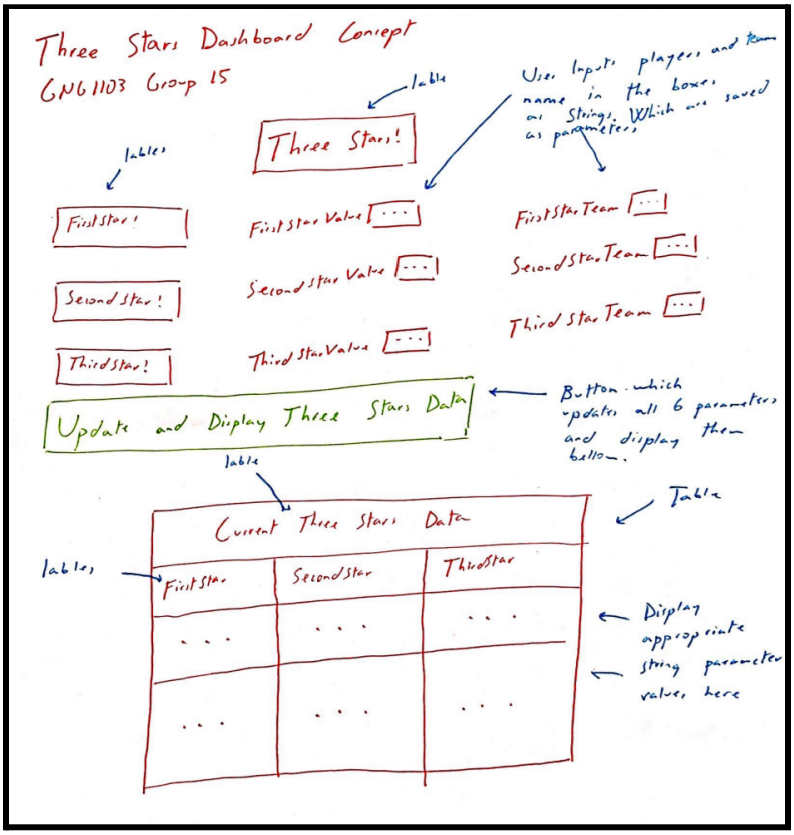
Three Stars Prototype:

The Three Stars component is an integral part of the project. The three star component will list the three best performing players in a game. This component needs to be user friendly, configurable and creative.

Three Stars Concept:

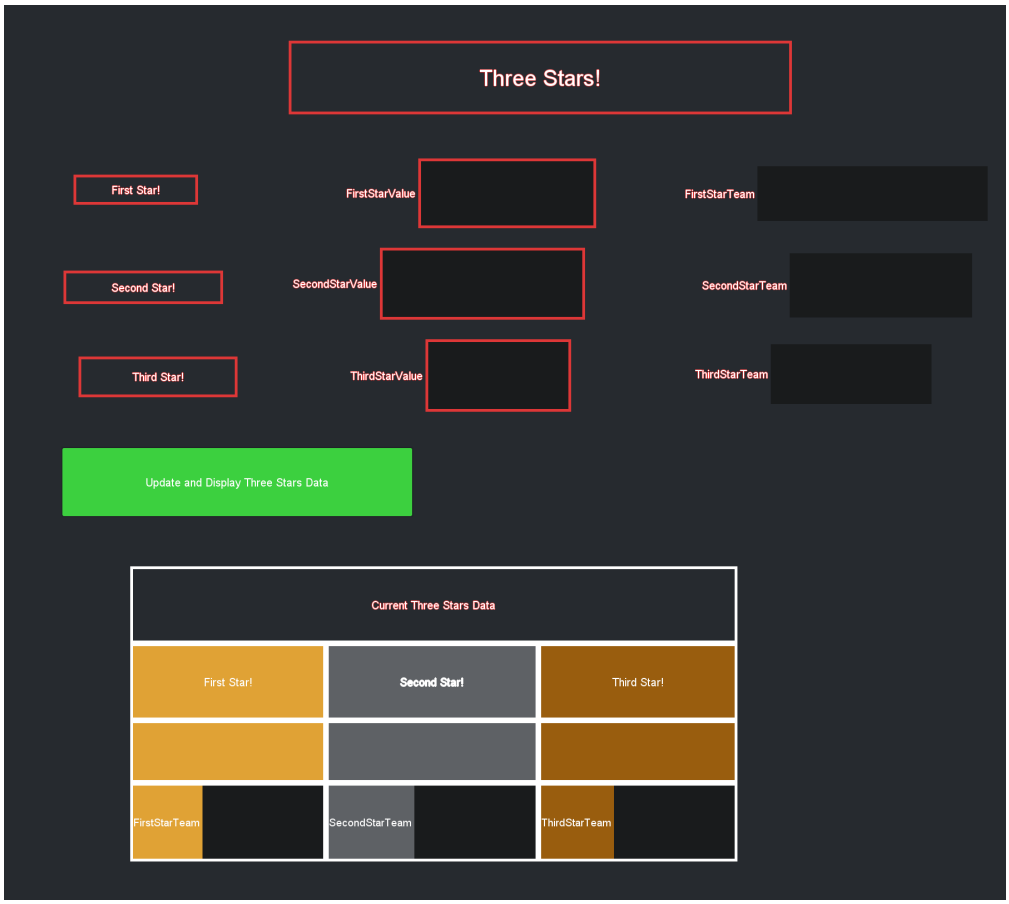
The three star concept is visually explained in Figure 1. The dashboard panel will consist of three String parameters to save the names of the three best performing players. There will be an additional three color parameters which will save team colors of the players. The user will be able to input the player names with their corresponding team color. The operator can change the players names and team colors instantaneously by writing another name or setting another color in the params boxes. Thus, the concept is quickly configurable by the operator. Below the String and color inputs, is a big green button which is easy to read. When the button is clicked it will save the inputted values in the appropriate parameters and display the results in a table. The table is located at the bottom of the dashboard panel.

Figure. 8 Three Stars Concept



Three Stars Working Prototype:

Figure 9. Three Stars Working Prototype



Simulation Procedure:

1. Reset all 6 String parameters to “null”. By inputting “null” in the boxes and clicking the big green button.
2. Start an external timer to measure time.
3. Input names and team names in the input boxes. Click the big green button.
4. Pause the timer and record the time.
5. Observe if the names and team names are displayed correctly.
6. Resume the timer.
7. Input different names and team names. Click the big green button.
8. Stop the timer. Record the time.
9. Observe if the new names and team names are displayed correctly.

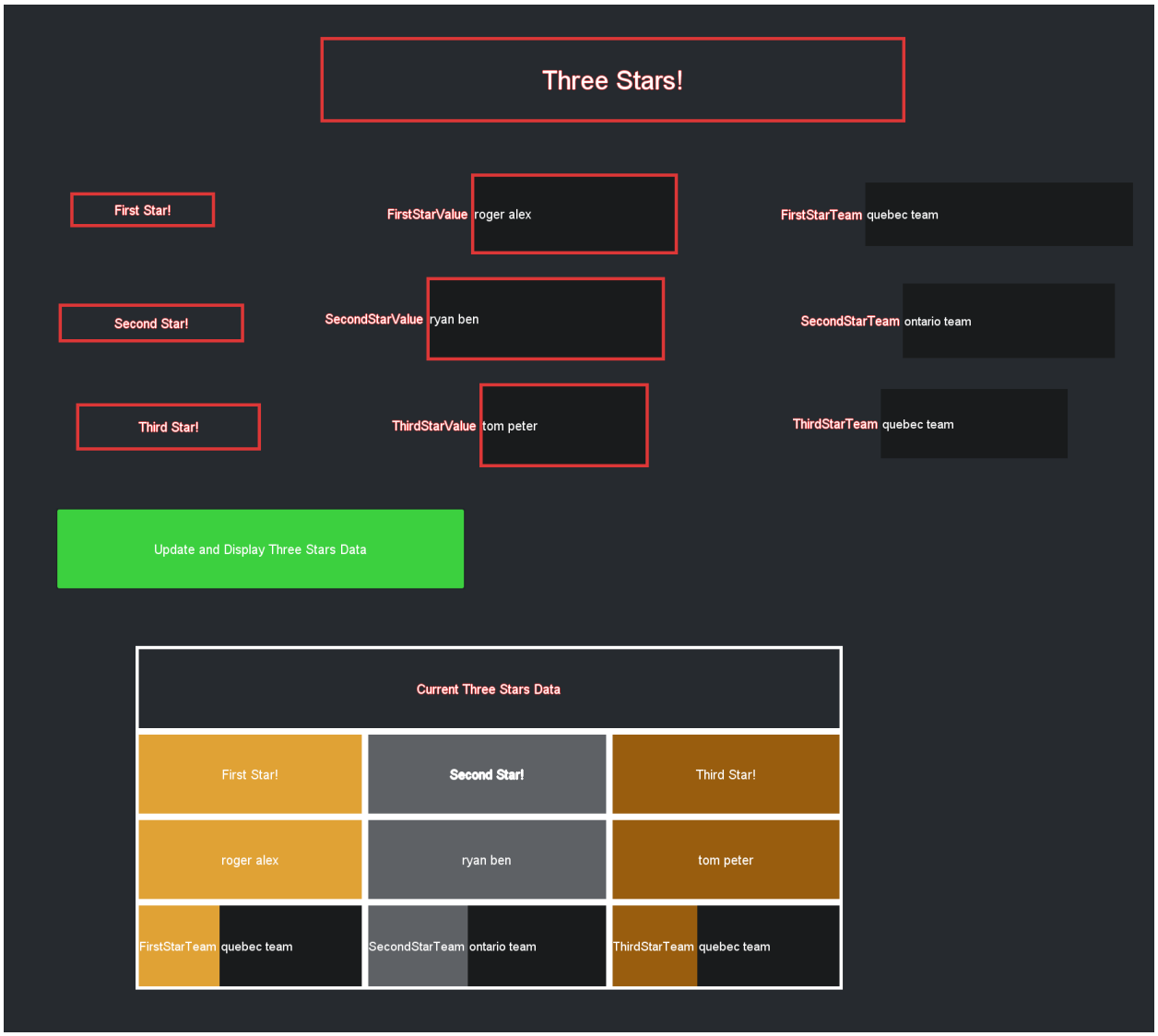
Simulation Testing:

The simulation test is performed bellow:

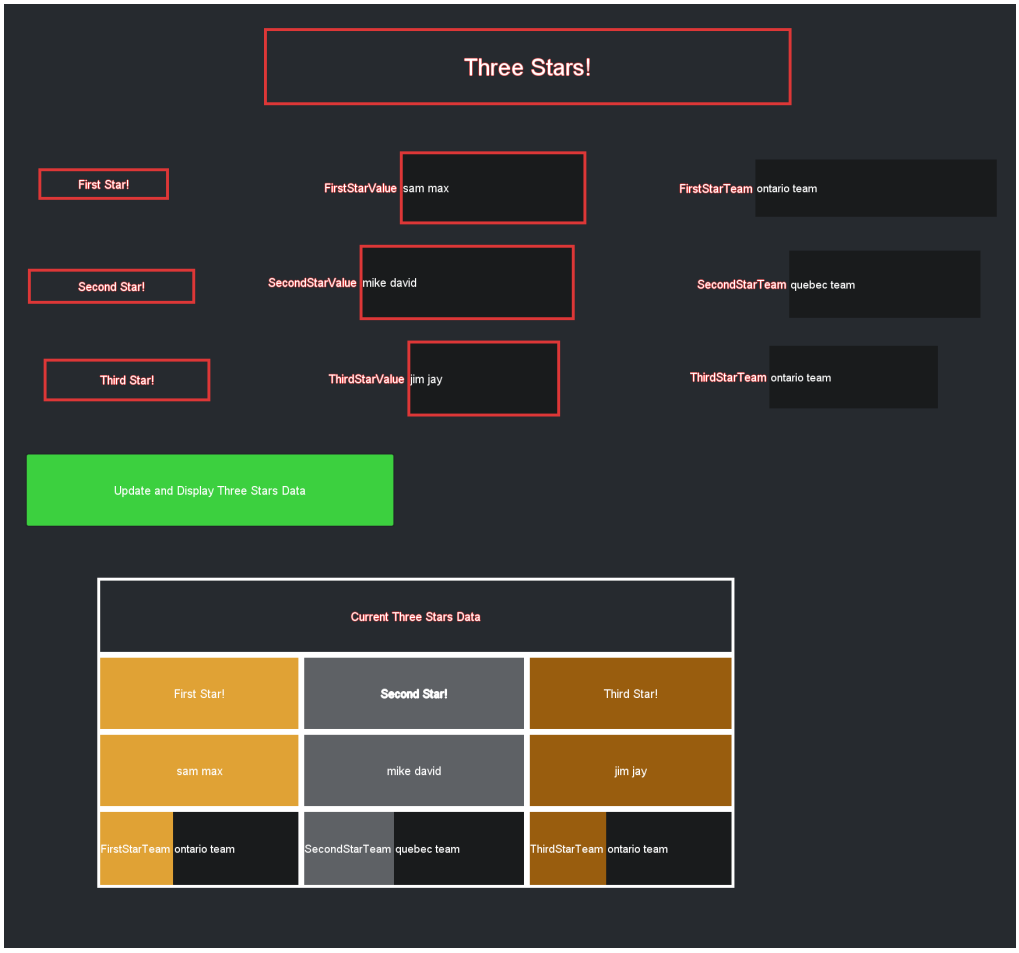
Time: 0 sec.

Setting a parameters to null

Time: 10 seconds



Time: 24 seconds



Feedback

Table 5. Summary of user feedback from a sample size of 5 people for Three Stars

Aspect	Rating out of 10	Feedback
Configurability	8/10	• Operator can write any work in the input box. • A neat feature would be to change the color and font of the String to increase configurability.

User-friendliness	9/10	● The big green button is easy to see and use. ● The program is intuitive.
Aesthetics	8/10	● The display table had gold, silver and bronze colors to easily identify first, second, and third place.
Functionality	9/10	● The program functions with no glitches. ● There is a concern if the operator miss-spells a player name.

Three Stars! Discussion and Improvements

The Three Stars! Prototype needs to be highly configurable, user-friendly and intuitive to use. The time to change player and team names was very quick. In the simulation test it took an average of 11 seconds for the operator to assign player and team names to the stars. Thus, it was very quick to use. The testing process showed that the program was very configurable, because the operator can input any String for the inputs. Thus the operator can be really creative. The operator can add an exclamation point after the name (example: “Smith Jone!”) or be even more creative (example: “great job Smith Jone!”). The feedback received explained that the prototype was very aesthetically pleasing by using gold, silver and bronze to identify first, second and third place. The people giving feedback also explained that they liked the big green button for its aesthetics and user friendliness. In addition the program functions without any coding errors.

There are some improvements which can be made: A significant improvement is to add the player's picture with the name. The people giving the feedback explained that an improvement can be made by allowing the operator to change the color and font of the Strings.

Wrike Update: