University of Ottawa | Université d'Ottawa

GNG1103 | Fall 2021

uOttawa

GNG1103

Engineering Design

Course Professor: Dr. Rubina Lakhani

Deliverable F

Prototype 1 and Testing Plan

Presented to: Abhilasha

Prepared by Group # 11

Team Members:

Family Name, Name:	Student ID:
Keryakes, Laura	300265134
Al Sabbah, Faraj	300213648
Birmingham, Jonathan	300247449
Bégin, Justine	300164015
Pratt, Eli	300177477

Date: November 4, 2021

Introduction:

Throughout the semester, GNG1103 students in section G have been collaborating with Ross Video. This collaboration has been initiated in order to create a panel design on DashBoard to allow the operators at the TD Place to display fresh content to engage and excite the fans. Group 11 has decided to help them with creating a panel design for displaying fan birthdays and a panel design to help them display the team set ups. The panels will be easily configurable for different birthdays and different teams, easy to set up and simple in design to limit noise.

Previously, group 11 has identified the client needs, created conceptual designs for the project and an overall cost estimate of the project. The prototypes and final design will be implemented onto DashBoard, therefore the cost is limited since most of the project will not require any physical material. Both panels will be made on 1 DashBoard configurable file.

In this deliverable, project planning and solution have been taken to the prototyping phase and feedback. It will present the prototype test plan and will include the first prototype which will be based on a proof of concept. Therefore, many of the components are not expected to be functional as they would be for the team's final design. The team will analyze the prototype through using basic concepts of computer science. Lastly, the prototype will include feedback and comments collected from family and friends on the prototype.

In the next prototype, the team will utilize the client's feedback in regards to this prototype. The team will test prototype II by testing the configurability of the panels on DashBoard. Lastly, the team will test prototype III by connecting the Dashboard Software to the presentation engine which Ross Video regularly uses, XPression, and then receiving feedback on graphics timing, ease of presentation, and intuitiveness of use.

Prototype Test Plan :

Test ID	*Test Objective (Why)*	*Description of Prototype used and of Basic Test Method (What)*	*Description of Results to be Recorded and how these results will be used (How)*	*Estimated Test duration and planned start date (When)*
1	Configurability of the data (For both panels) - Are the panels configurable for different fan birthdays? - Are the panels configurable for different teams setups?	- The client requested the panels to be fully configurable. They have no use for the panels if they can not be used during any game, no matter what teams are playing. -Primary and secondary colours, logos of the teams and team names need to be easily changeable by the operator. - For fan birthdays, names, personalized messages and pictures of fans and amount of birthdays need to be easily configurable by the operator. - The test method will be us operating on the panel as we are the operator, and we will time ourselves to see how easy and fast the configuration of the data is.	- After designing the panel, the results of the test will be recorded by acting as the operator and changing the information on the panels as if there was a game going on. - Thus, not only do we need to test if the Dashboard panel effectively accepts configurable data, but we also need to test how easy it is to configure the data, such that the operator does not need to search for the information he/she needs, but rather can find it directly at his/her fingertips. - The team will know if the results are effective if these two guidelines are answered. More precisely, to ensure that the search for information is done quickly and effectively, we will time ourselves as we go through the operator's task. If each task takes less than 15 seconds, we can progress through the other tests, if not, we need to modify the panel further.	- The configurability of data will be tested during the time frame of; November 4th to November 11th.

2	The optimization of the layout of the panel (For both panels) - Does the fan panel make any noise (Is it cluttered)? - Does the team setup panel make any noise (Is it cluttered)?	- It is important that the panels are designed with simplicity, so the operator does not need to waste time looking for a specific button (which in turn could be very costly during a game- i.e. if there is an awkward downtime). - The panel should be designed in a way where the placement of the buttons is relevant and easily accessible (i.e. the operator does not need to go from one side of the panel to the other for a consecutive task). - The test method will be done in two stages; 1) Each of the team members will operate on the panels as if they were the operator. 2) Interviewing friends and family and asking what they think of the layout of the design.	- We need to place ourselves in the operator's shoes and understand the importance of an optimized panel layout. - We will know we reached the optimized panel design once we have reached the peak of our modifications (we cannot come up with any more modifications). - To ensure that our modifications are not biased (that we are not too overly confident with our panel layout), we can ask our friends or other people in our entourage if the layout of the panel is cluttered or not (we will essentially conduct a survey). - If 80% or more of the people we surveyed said 'no it is not cluttered', we can be satisfied with our panel layout. If it is below 80%, we must iterate the process.	- The optimization of the layout will be tested during the time frame of; October 27th to November 4th.
3	Engagement on the main screen - Does the inputted data onto the fan birthdays panel display as expected on XPression?	- It is important to not only satisfy the operator, but also satisfy the fans. The main screen should translate effectively what the panel design is implying, while also being done in a manner that is engaging. The main screen cannot be cluttered with	- We should put ourselves in the fans' shoes and essentially determine and define what aspects of the main screen could engage the fans and what does not. - These results will be recorded and translated to the panel design, so that the operator can effectively answer to the fans' engagement.	- This test will be done last, during prototype phase III, the date is within the time range of; November 4th To

	- Does the inputted data onto the team setups panel display as expected on XPression?	information, and the design cannot be too simplistic in fear of boring the fans. - We will test how our panels are displaying the information onto Ross Video's graphics by testing our prototype onto XPression.	- By testing our panel design onto XPression, we will test the freedom the operator will have using our panels to display the information onto Ross' Graphics and how nice the information presented looks.	November 18th.

Prototype 1:

Test ID	***Test Objective (Why)***	***Was it successful?***	***Description of Results to be Recorded***	***Additional information***
1	Configurability of the data (For both panels) - Are the panels configurable for different fan birthdays? - Are the panels configurable for different teams setups?	The panels are not yet fully configurable, this function will be added and fully tested in the second prototype **Nov 4th-Nov 11th**	- We will see if the results we obtain match with our proof of concept which we provided a sample of in this prototype. - We have a client meeting before the next prototype, we will present to them our proof of concept and gather their feedback before moving forward.	While configuring the teams' data automatically is a good idea. The fan birthdays will be configured manually in case of inappropriate messages or pictures.
2	The optimization of the layout of the panel (For both panels) - Does the fan panel make any noise (Is it cluttered)?	- The test was successful.	- Each of the team members operated on the panels as they were the operator, we modified the panels based on all feedback. - The panel design was presented to professor	We will present our panel design to the client during our upcoming meeting, any suggestions made on their behalf will be implemented.

	- Does the team setup panel make any noise (Is it cluttered)		Lakhani, her feedback was taken into consideration and more modifications were made accordingly. - The panel design was presented to friends and family. The goal of the panels was explained to them and more than 80% approved of the layout and the suggestions made were also taken into account.	
3	Engagement on the main screen - Does the inputted data onto the fan birthdays panel display as expected on XPression? - Does the inputted data onto the team setups panel display as expected on XPression?	- It is impossible to test this at this time, as we do not yet have access to the XPression software, nor the equipment designed to display the graphics on the big screen.	- Professor Lakhani has mentioned that the equipment is to be found at the lab site, therefore in the upcoming few weeks we will utilize that equipment to test our panels onto XPressions and get a feel of what needs to be modified accordingly.	This step is the most uncertain step, while our design might be intuitive and easy to use, it is possible that it will not properly translate to XPression and thus the big screen. We will make sure to get a head start on this step in order to resolve any issues that might come up early on.

Analysis of Systems Included:

The prototype is divided into 2 different subsections:

- Fan Birthdays
- Team Setup

For Fan birthdays, critical components of the solution must include:

a) Programmability of the number of fan birthdays.
b) Ability to adjust the amount of time birthdays are displayed for.
c) Ability to spontaneously stop the program's running.
d) Ability to spontaneously pause the program's running, in order to display something else on the screen and resume where paused.
e) Automatic connection of a "Fan Birthday Box" to the desired displayed graphics in XPression.
f) Ability to adjust the fan's name, personalized message, and displayed picture (if any) in any birthday box displayed.

For Team setup, critical components of the solution must include:

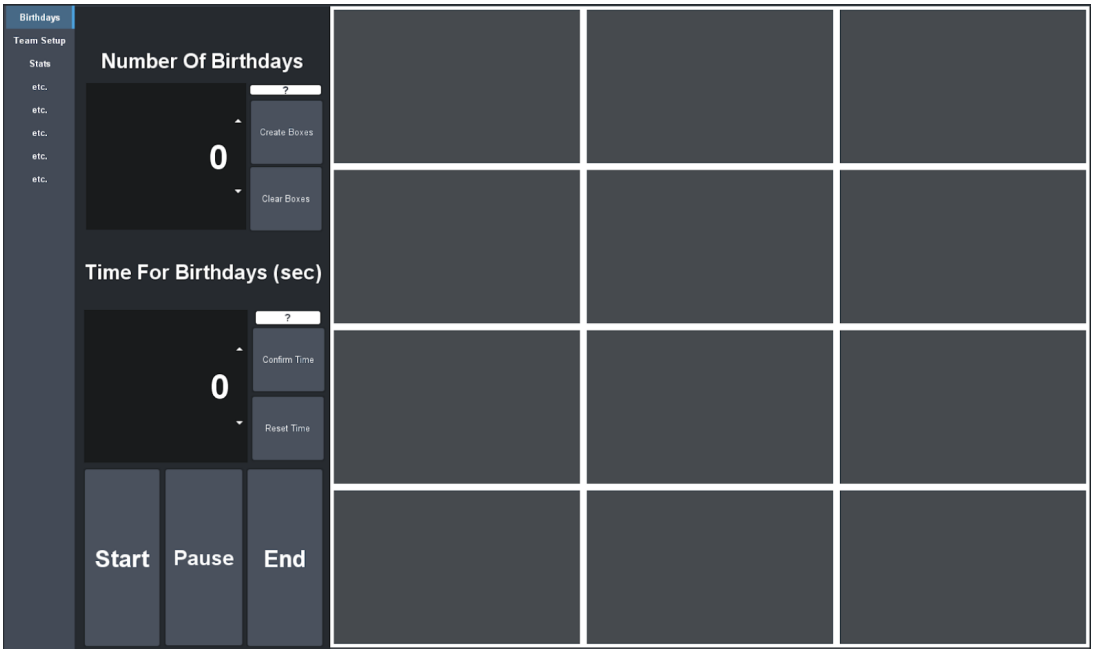
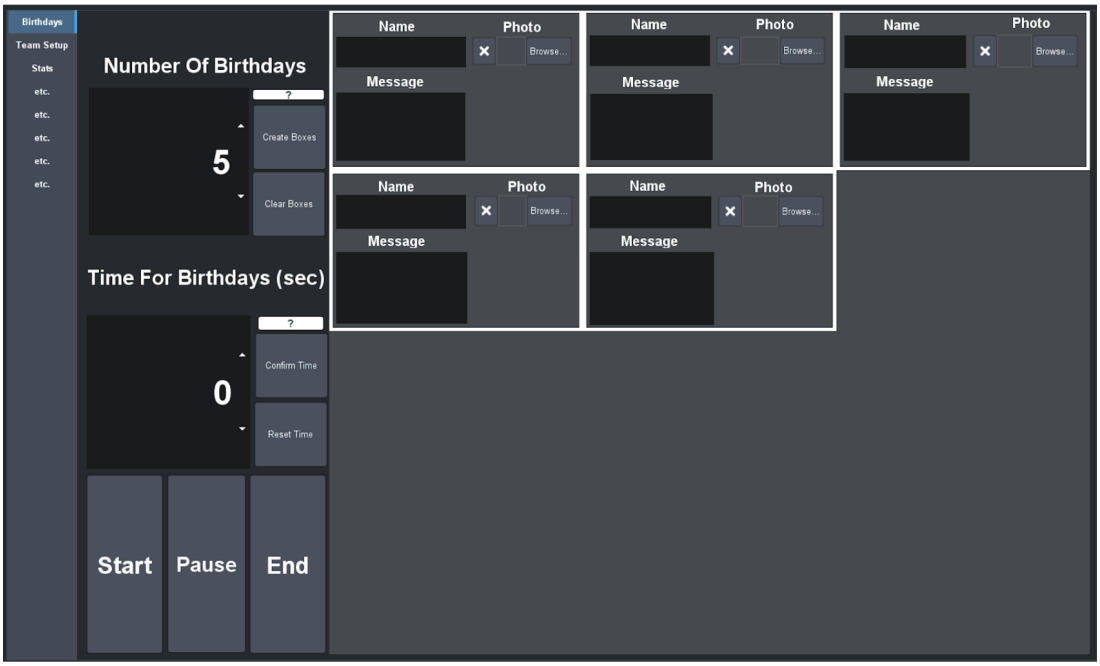
a) Editability of the primary and secondarys colours, logos, and team name displayed in the XPression Graphic.
b) Graphics cues must be easily accessible and the time delay between the graphics must be editable
c) Editability of sound effects by the operator.
d) Ability to spontaneously stop the program running.
e) Ability to spontaneously start the program.

- In DashBoard, we allocated 1GB of RAM for the panels, while they are not yet finished, less than 3% of the 1GB was being used. Therefore, it is fair to assume that after the project is finished, 1GB of RAM will be more than enough to run the program.

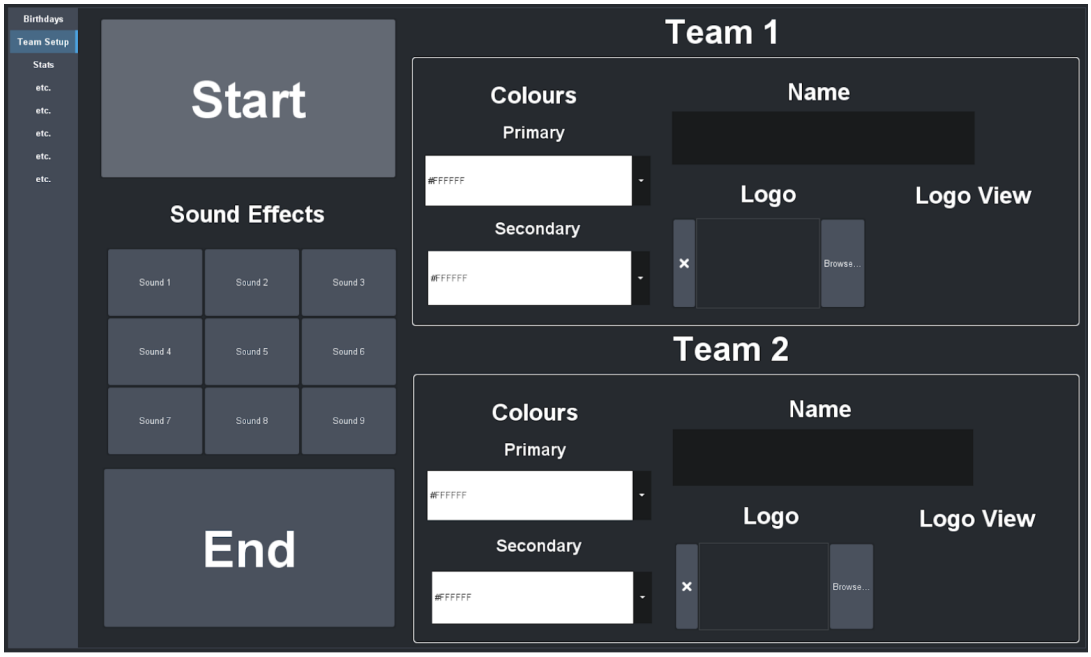
List of Materials:

For prototype I, only DashBoard is needed.

Prototype I:

Lay Out of the Panels (Operator's View)
Fan Birthdays Panel Layout
 When the panels file is opened on DashBoard, this will be the operator's original view, there will be no boxes on the right side of the screen to input any fan birthdays yet.
 **Proof of concept**: 5 boxes have shown up after the operator clicked "create boxes", the boxes have spots for a name to be inputted, a message and a photo.

Team Setup Panel Layout



When the Team Setup panel is opened, this will be the operator's original view, there will be no team names, colours or logos yet.

Proof of concept: the operator has inputted the teams names and their primary and secondary colours.

Documentation of Prototype Testing Plan, Analysis and Results:

Gathered Feedback On Prototype:

- Professor Lakhani suggested that we add a “Pause” button to the panel layout for fan birthdays which we did, this will allow the operator to pause the display of fan birthdays at x time and when he/she clicks start it will pick up where it left off.
- As mentioned in the prototype test plan, a survey was conducted amongst friends and family. The purpose of the panel was explained to each participant:

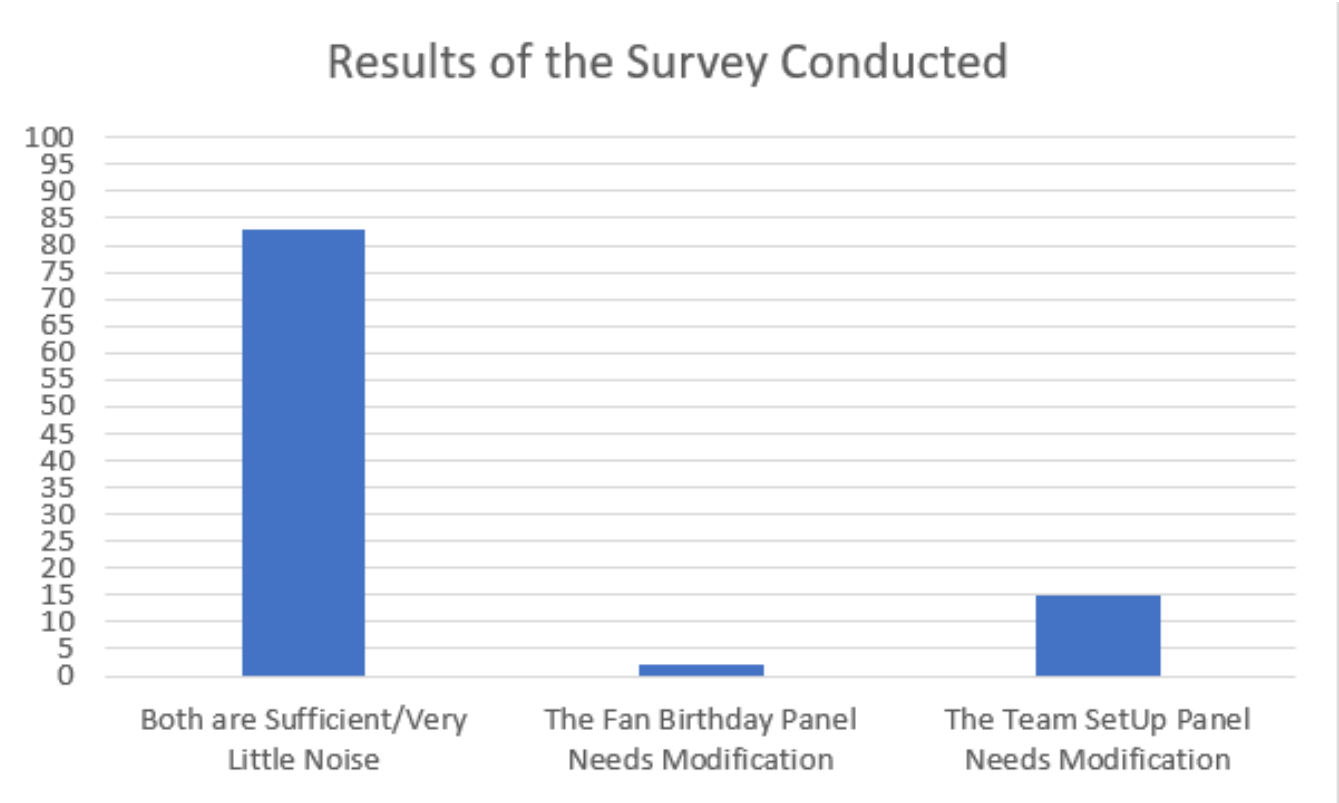


Figure 1: Chart Showing the Average for Each Response on the Survey.

As shown in Figure 1, 83% of the respondents said that both panels have very little noise (cluterness) associated with them, while 2% said they think the fan birthday panel needs modification and 15% said the team setup panel needs modification. The survey also contained a section to rate the design out of 10, provide feedback and whether they would recommend it to someone or not, a few samples are provided in the table below.

Names	***Rating out of 10***	***Feedback***	***Would Recommend to someone***
Sophie	8	Good configuration and straight to the point, there are not too many things happening at once on the screen. Easy to switch from one panel to another.	yes
Lucas	9	The panels are nice and well-organized, it's easy to understand what's going on—a bit confusing at first, but it doesn't take long to grasp.	yes
Steven	7	Nice interface and the ideas are entertaining, but it does not seem completely independent, which could be tiresome after a while. Overall good though.	yes
Emma	6	The design is a bit confusing, seems impractical to use and it doesn't look like it is able to do everything on its own.	no
Claire	9	Great, intuitive and easy to use interface. Very user-friendly, even for those not familiar with this kind of software.	yes
Kim	10	Panel seems intuitive to use, there's not really much to improve upon. I love how its simple design doesn't affect its supposed function.	yes

Overall the prototype was well received by the people who tested it, and it exceeded the targeted 80% average that was set. There are still many questions that need to be answered in later prototypes, however as a first step, we are proud of the results we achieved. We have a clear idea of where the prototypes are heading and what steps need to be taken to achieve our objectives, we expect to deliver a great product on design day if everything goes as planned.

Conclusion:

In this deliverable, group 11 designed the layout of the panels for Ross Video. An analysis of the layout in terms of cluttreness and usefulness was conducted by presenting our idea to the professor, friends and families and within our own team. Feedback from the professor and friends were taken into consideration and implemented wherever possible. Dr. Lakhani suggested a button to pause the display of fan birthdays which was added to the final panel design in this prototype. Over 83% of the people surveyed approved of our first prototype, which was centered on the layout of both panel designs. Based on our prototype testing plan, this reaches our desired result and therefore, we can proceed to the next step (Prototype II).

In our upcoming client meeting, we will present a proof of concept of what each of the panels' supposed functions will be. We will collect feedback from the client and utilize it to improve upon our prototype II.

In prototype II, we hope to have both panels fully functional and configurable in order to test their functionality in prototype III. Thus, the final date to ensure full functionality and configurability of the prototype will be November 11th.

Lastly, during our third prototype, we will test the panels onto XPression and test the graphics timing, ease of presentation and intuitiveness of use, as mentioned in our prototype testing plan. The deadline for this prototype will be on November 18th. Thus, in this prototype, it is important that the prototype is complete in such a way that it is presentable and functional to the client.