GNG 1103 Project Deliverable F

Prototype/Proof of Concept

Group 15

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

November 4, 2021

Abstract:

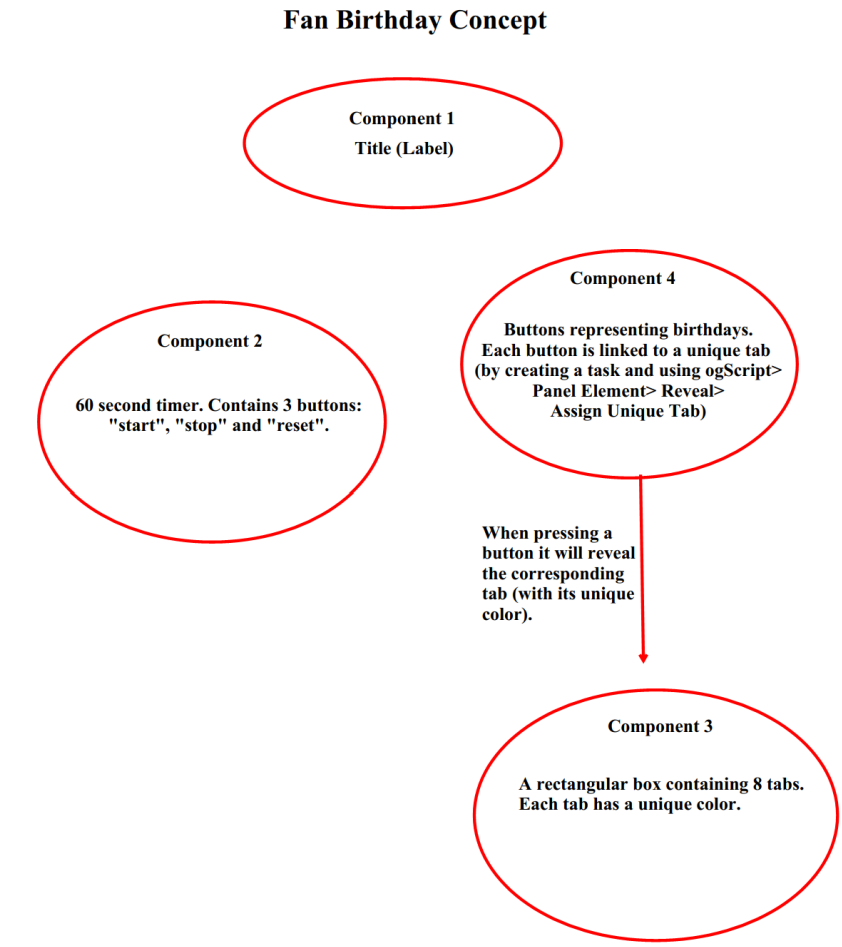
The purpose of this deliverable is to prototype and test one project subsystem. The chosen subsystem to investigate is “Fan Birthdays”.

Prototype Concept:

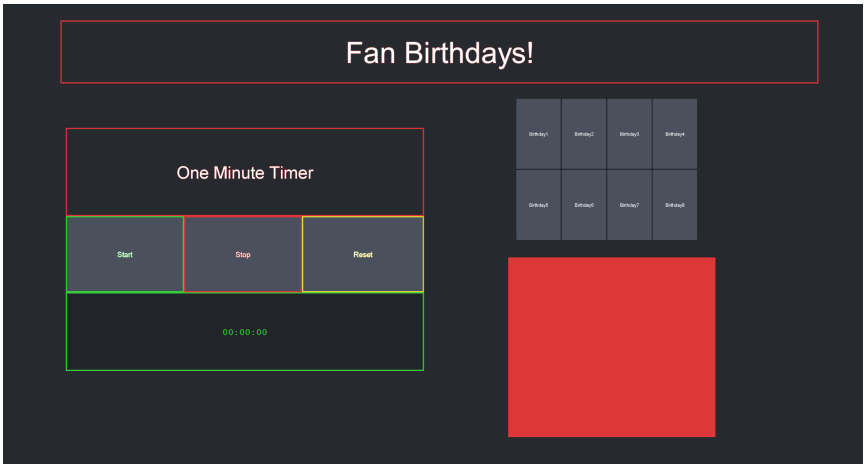
The “Fan Birthday” subsystem was designed to be simple and user friendly. The design contains four components.

- Component 1: is the title using a label tool in Dashboard.
- Component 2: is a 60 second timer. The timer has three buttons: “start”, “stop” and “reset” which control the timer. The operator will use the timer to determine how much time each birthday is displayed.
- Component 3: is a rectangle box which contains multiple tabs. Each tab has a unique color and represents a unique fan birthday.
- Component 4: are buttons. Each button is linked to a unique tab. When the button is pressed it will reveal its corresponding tab in Component 3. When one of the buttons is pressed it will reveal one unique color in the Component 3 rectangle.

Figure 1. Concept



Real Fan Birthday Prototype:

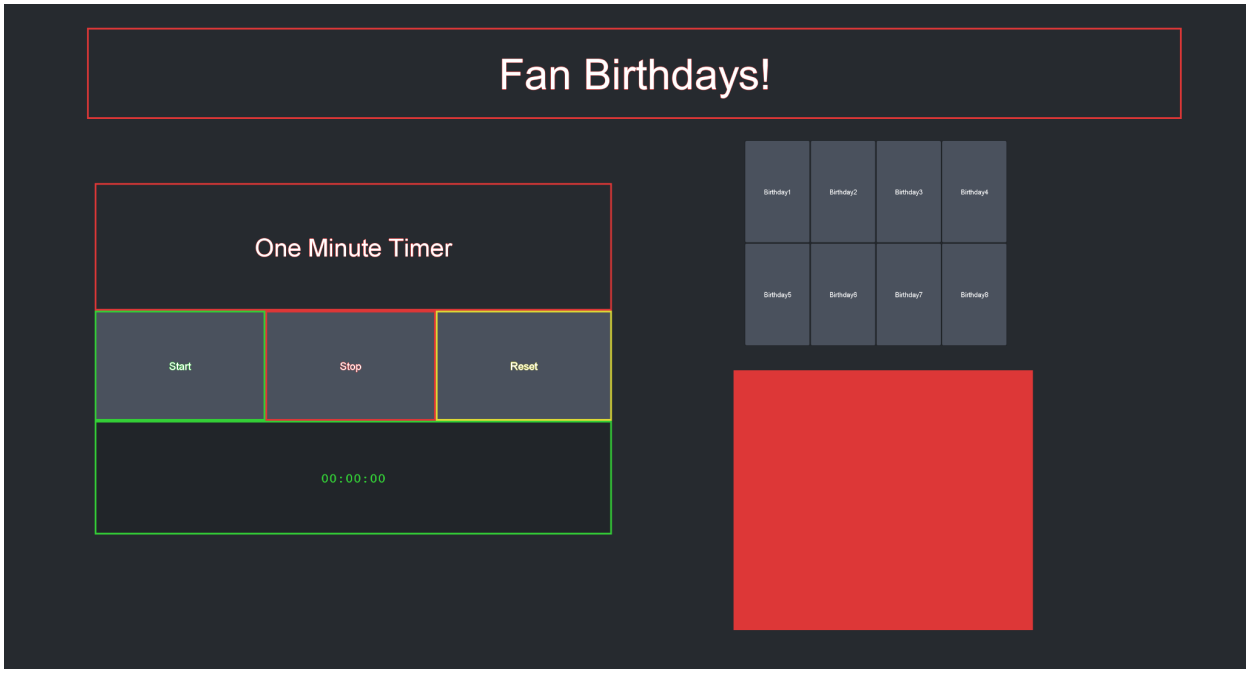


Prototype Simulation Procedure:

1. Reset the timer to zero seconds.
2. Determine how long each fan birthday will be displayed by the following formula: $Individual\ Fan\ Birthday\ Display\ Time\ (sec)\ =\ ((\#\ Fan\ Birthdays)/(60\ sec)$
3. Start the timer with the “start” button and immediately press the button “Birthday1”.
4. Wait until the timer reaches the desired amount of display time. Then press the next fan birthday button. At this moment the color will change in Component 3 indicating the next birthday is being presented.
5. Repeat step 4 until 60 seconds passes and all birthdays have been presented in Component 3.

Real Prototype Simulation Images following the Procedure:

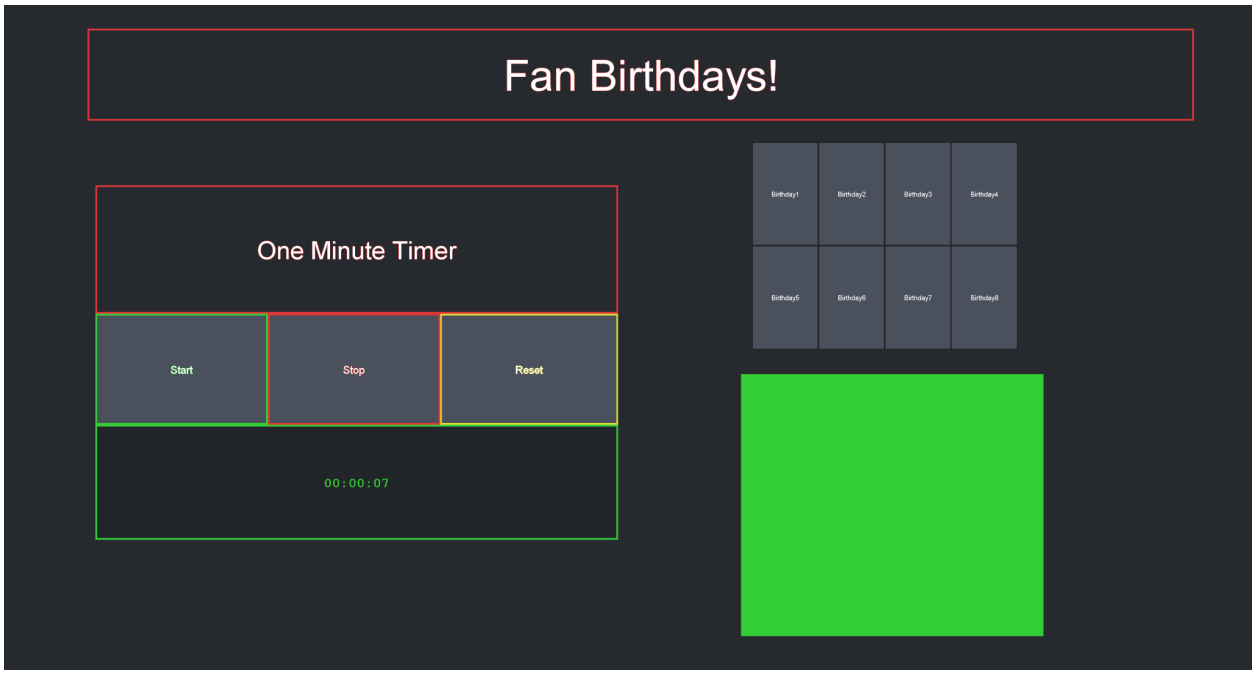
Start Timer



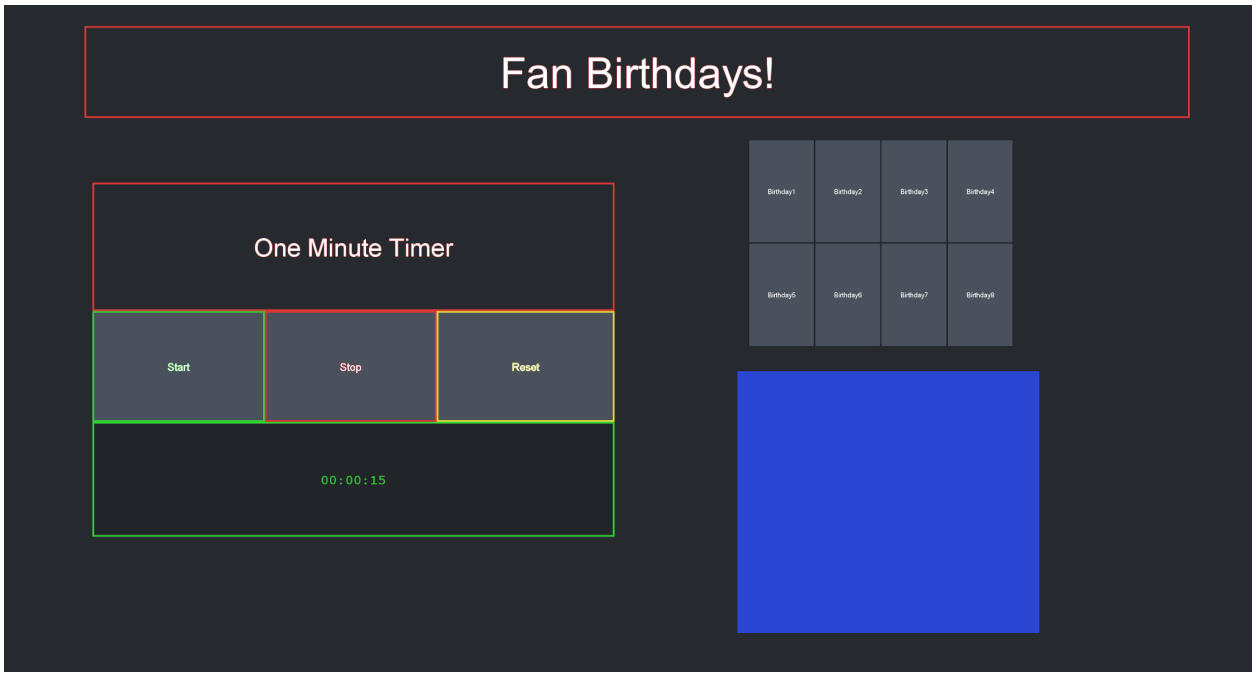
Use formula to determine “Individual Fan Birthday Display Time”. There are 8 Birthdays therefore each birthday should be displayed for 7.5 seconds.

- As per procedure: at 7.5 sec press button “birthday2”, at 15 sec press “birthday3” at, 22.5 sec press “Birthday4” at, 30 sec press “Birthday5”, at 37.5 sec press “Birthday6”, at 45 sec press “Birthday7” and at 52.5 sec press “Birthday8”.

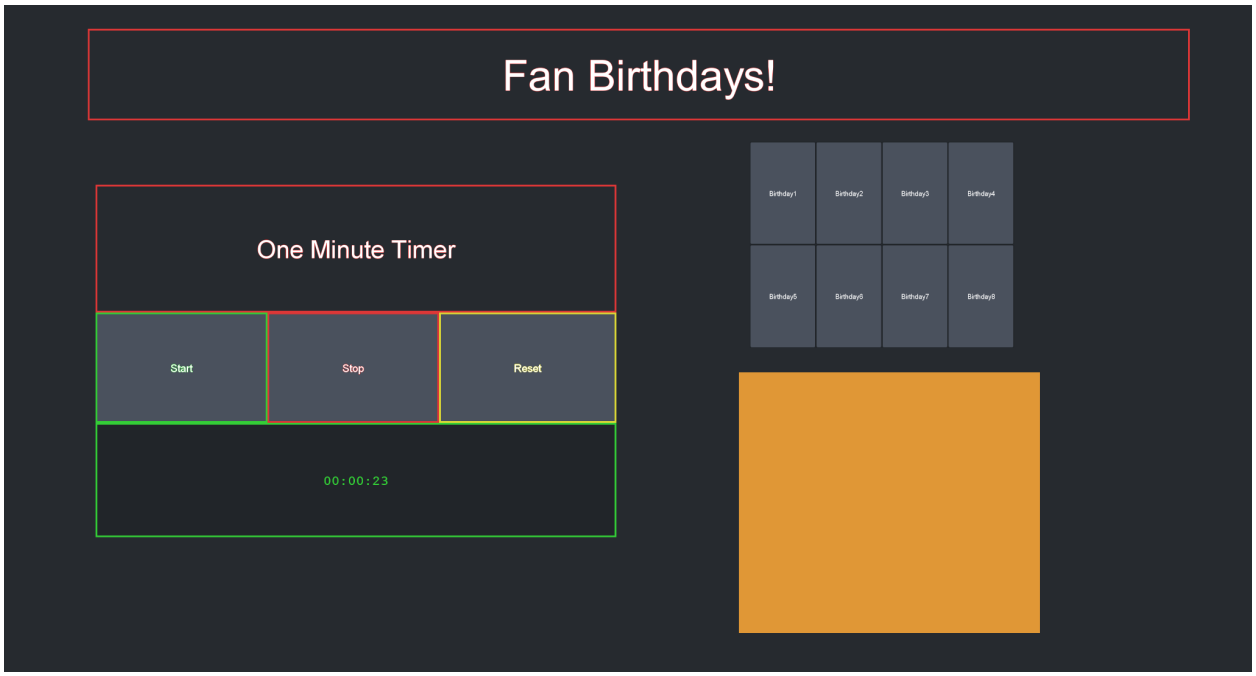
At 7.5 sec press Birthday2 (this changes Component 3 to green).



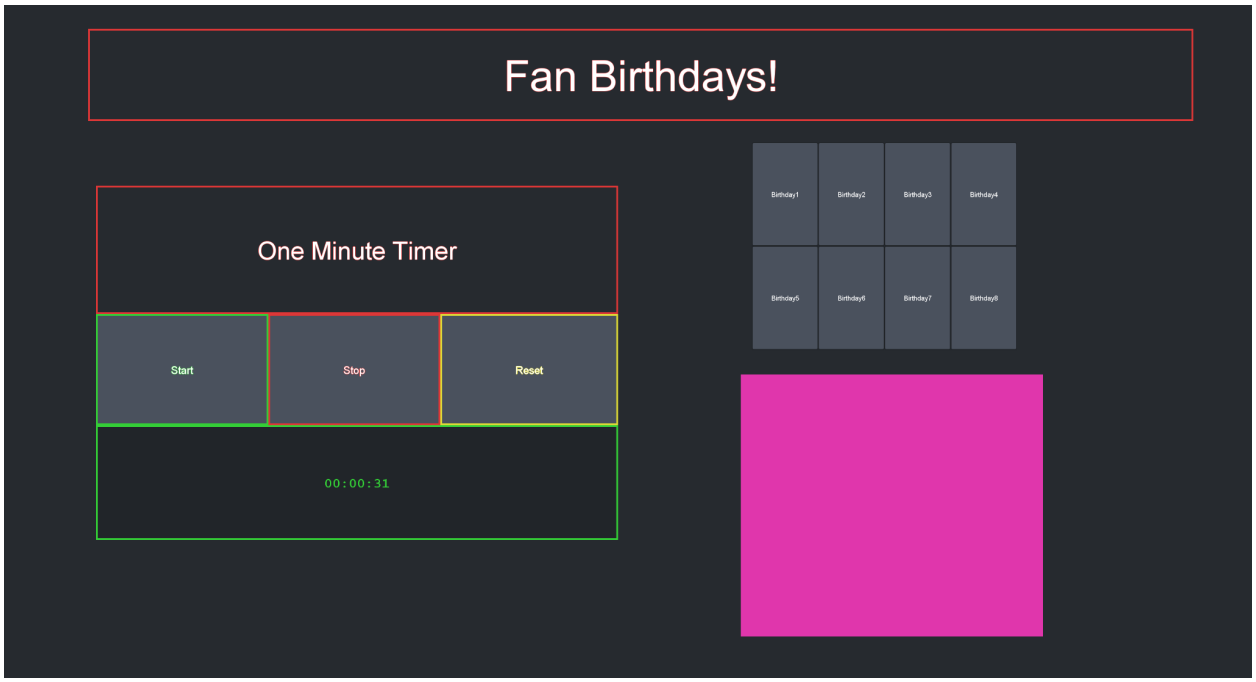
At 15 sec press Birthday3, this will change Component 3 to blue.



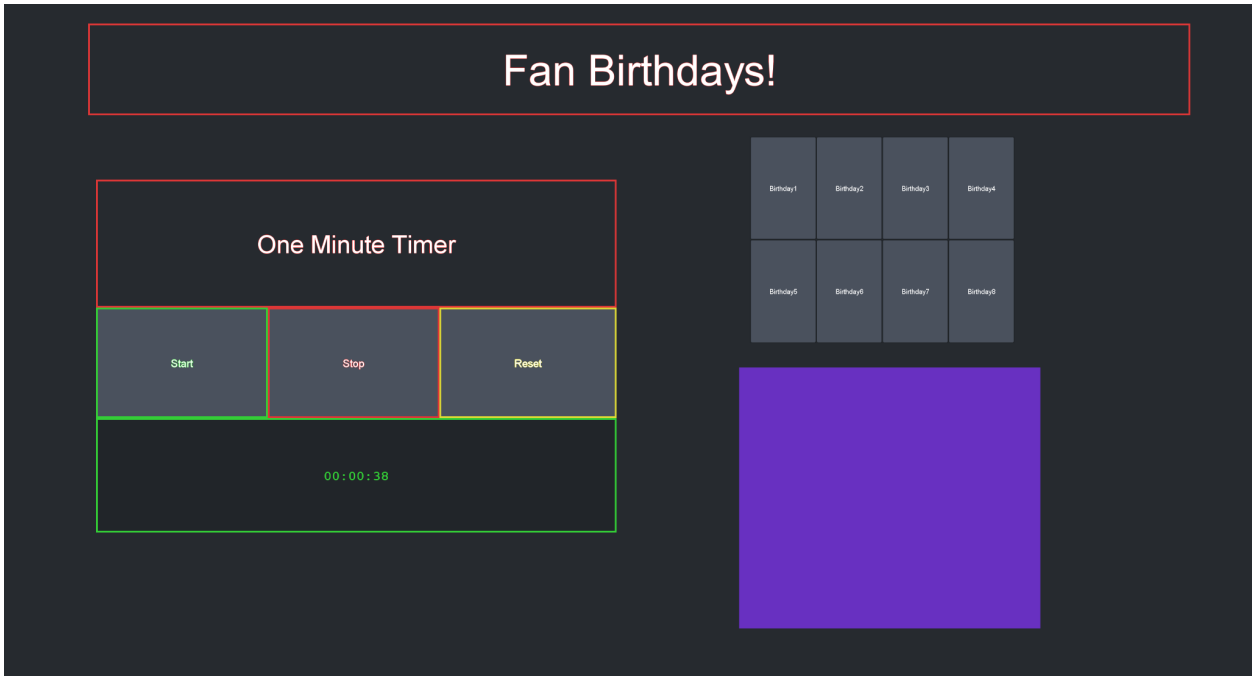
At 22.5 sec press Birthday4, this will change Component 3 to yellow.



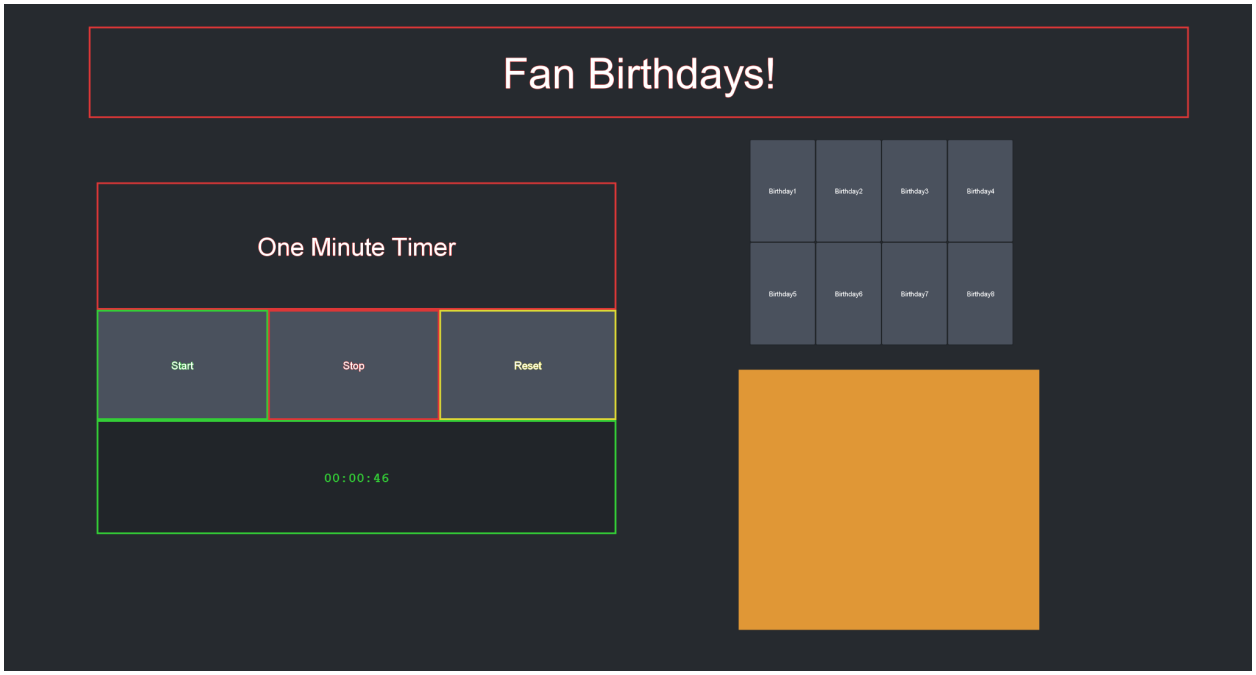
At 30 sec press Birthday5, this will change Component 3 to pink.



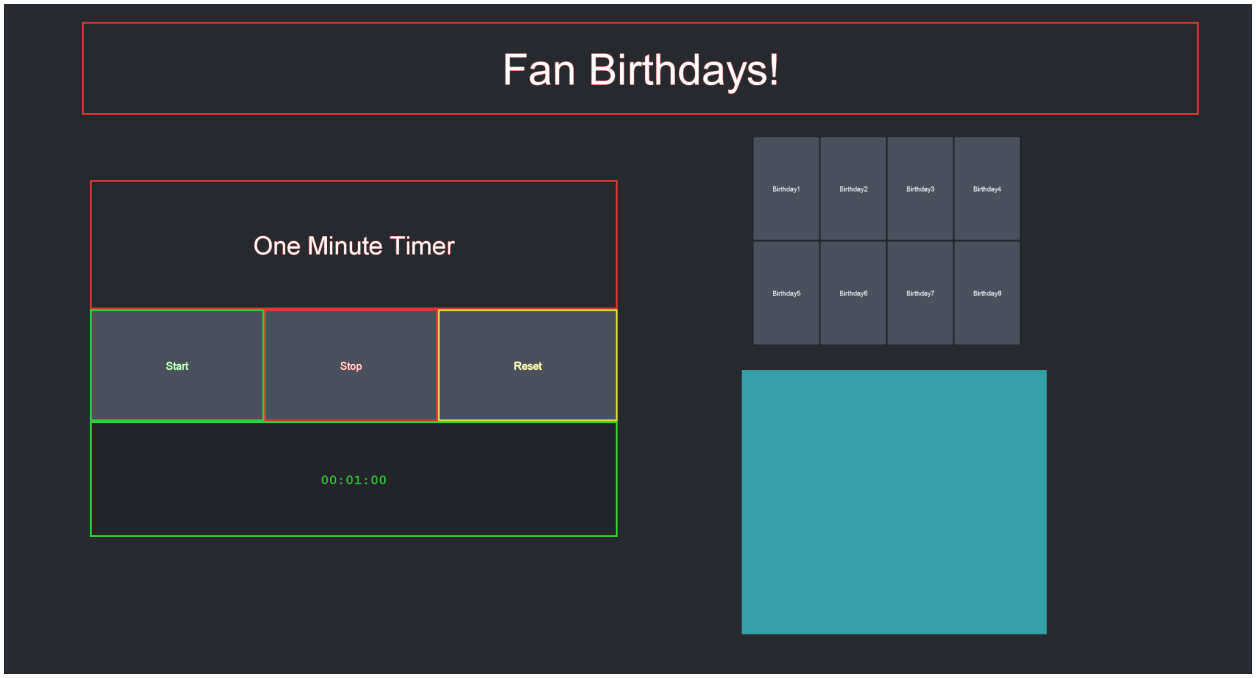
At 37.5 sec press Birthday6, this will change Component 3 to purple.



At 45 sec press Birthday7, this will change Component 3 to dark yellow.



At 52.5 sec press Birthday7, this will change Component 3 to light blue.



Prototype Simulation Issues and Improvements:

- The main issue is not all fan birthdays had the same display time. This is due to human error. The operator is not quick enough to press the birthday buttons. Several ideas were brainstormed to fix this issue such as alerting the operator when to press the next button quicker with a sound or automate the birthday buttons.
- In the simulation each birthday should be displayed for 7.5 seconds. However the timer only has “hr: min: sec:”. Thus the operator could not precisely press the button at the right time. To fix this issue add “milliseconds” to the timer.

- The timer was designed to have “hr: min: sec” however the hours are not necessary since the timer is set up to only operate from zero to sixty seconds. To improve the timer the “hour" can be removed.
- The timer’s font is too small for the operator to see. The timer can be improved by increasing the font.

Results:

After the prototype was tested by multiple users, there were common themes for pros, cons and improvements. The metric used was a scale of 1-10 based on three factors: looks, configurability and functionality. The main goal was to achieve a 7/10 on all aspects.

Looks:
User #1: 8.5/10, “highlighted buttons would add easy identification”
User #2: 9/10, “love the organized layout of each part of the fan birthdays”
User #3: 9.25, “great use of colours for start (green), pause (yellow) and stop (red). Simple and understandable outline”
User #4: 8/10, “could have more complex additions, easy to understand”
User #5: 8.5/10, “very simple design that creates no issues, toggle buttons would be the cherry on top”
Overall: 8.65/10

Configurability:
User #1: 6.5/10, “needs some improvement on being able to use multiple different amounts of time vs fan messages per game”
User #2: 8.5/10, “works well, organized system, maybe addition of some different options of backgrounds”
User #3: 9/10, “like the use of different coloured buttons to indicate which birthday is being played”
User #4: 7/10, “like the use of birthdays being timed”
User #5: 7/10, “easily identifiable birthdays (labels on buttons), can switch out different birthdays each time”
Overall: 7.6/10

Functionality:

User #1: 8.5/10, “works well, may become confusing with timer, and not the same times being displayed”

User #2: 9.5/10, “works great, a simple system that produces efficient results”

User #3: 9/10, “fast system, uses a variety of methods to project each birthday”

User #4: 9/10, “quick system, would be a great addition to the Ottawa 67’s”

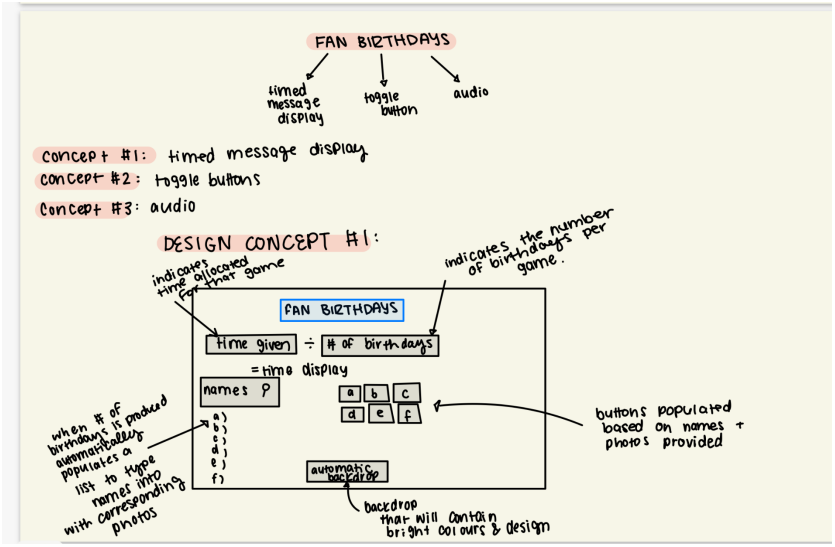
User #5: 8/10, “basic yet effective system, could use some different methods to allow for quicker production of needed birthdays”

Overall: 8.8/10

All aspects had reached a 7/10, there were common improvement suggestions. With five users, raw data was gained and can be taken into consideration. It allowed for indication of which parts of the Fan Birthday Dashboard needed improvement and which portions excelled. The team is now moving forward in hopes of using the suggestions to produce a more efficient system.

Prototype Test Plan #2 (Fan Birthdays):

For the second prototype of the design concept of fan birthdays three subsystems were now focused on: Timed message display, toggle buttons and working audio. Through each of these concepts they were broken down to fully explain the objectives. For design concept one, the timed message displays were the main goal. For design concept two, the toggle buttons were the main goal. For design concept three, the working audio was the main goal.

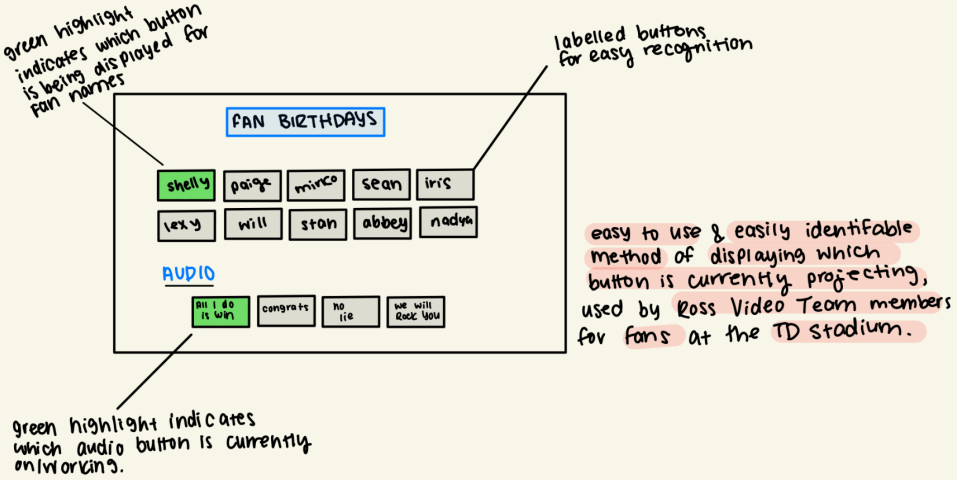


with photos

that will contain bright colours & design

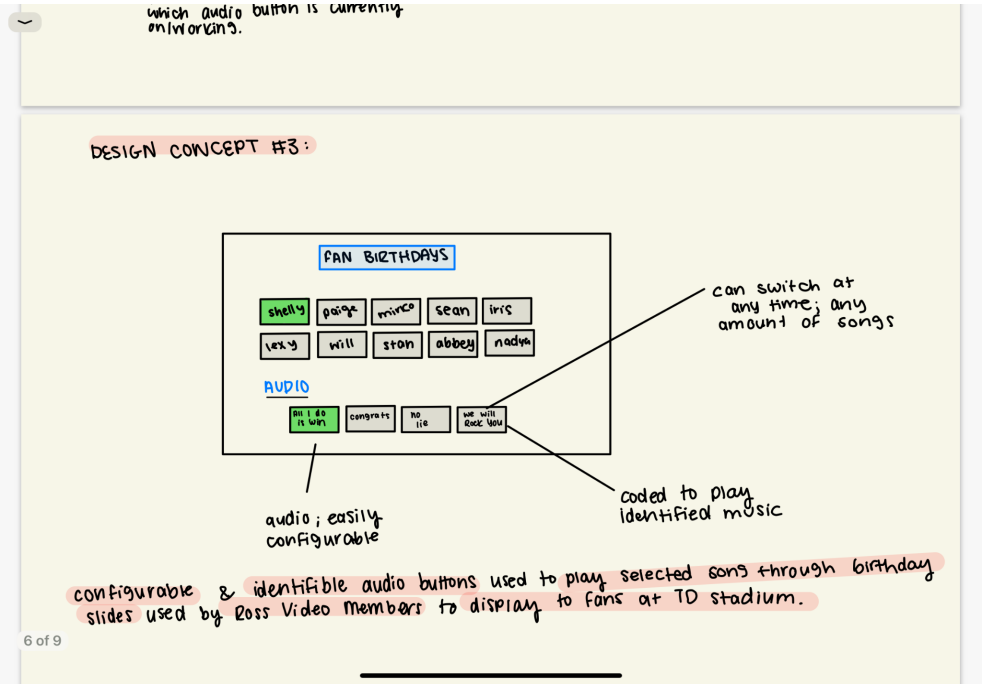
configurable & easy to use method of time display for birthdays used by Ross Video Members for display to fans within the TD stadium.

DESIGN CONCEPT #2:

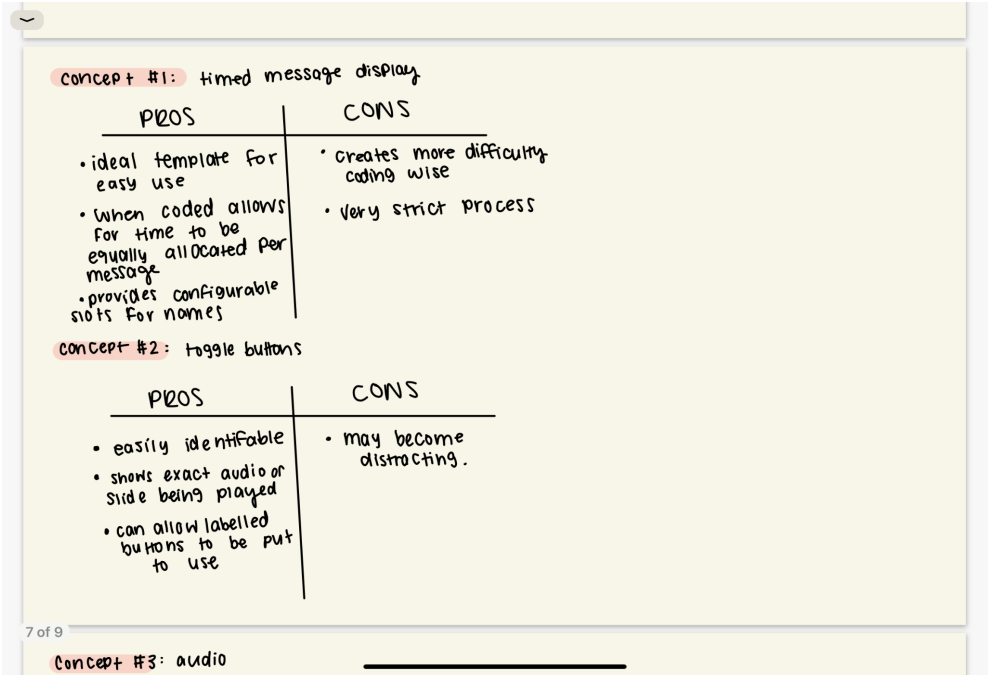


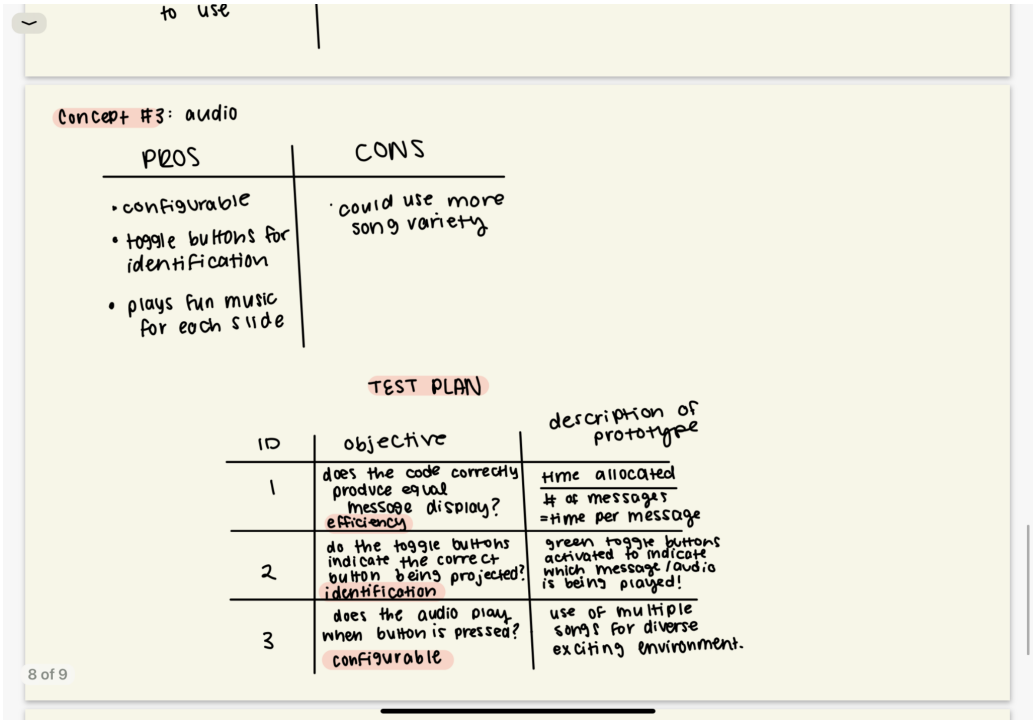
easy to use & easily identifable method of displaying which button is currently projecting, used by Ross Video Team members for fans at the TD stadium.

DESIGN CONCEPT #3:



Each concept was broken into pros and cons to grasp any issues that may arise. Some of the cons include increased difficulty for the coder and need for more variety. With this in mind, creating a solid plan for avoiding cons can be used.





to use

Concept #3: audio

PROS	CONS
• configurable • toggle buttons for identification • plays fun music for each slide	• could use more song variety

TEST PLAN

ID	objective	description of prototype
1	does the code correctly produce equal message display? efficiency	time allocated / # of messages = time per message
2	do the toggle buttons indicate the correct button being projected? identification	green toggle buttons activated to indicate which message/audio is being played!
3	does the audio play when button is pressed? configurable	use of multiple songs for diverse exciting environment.

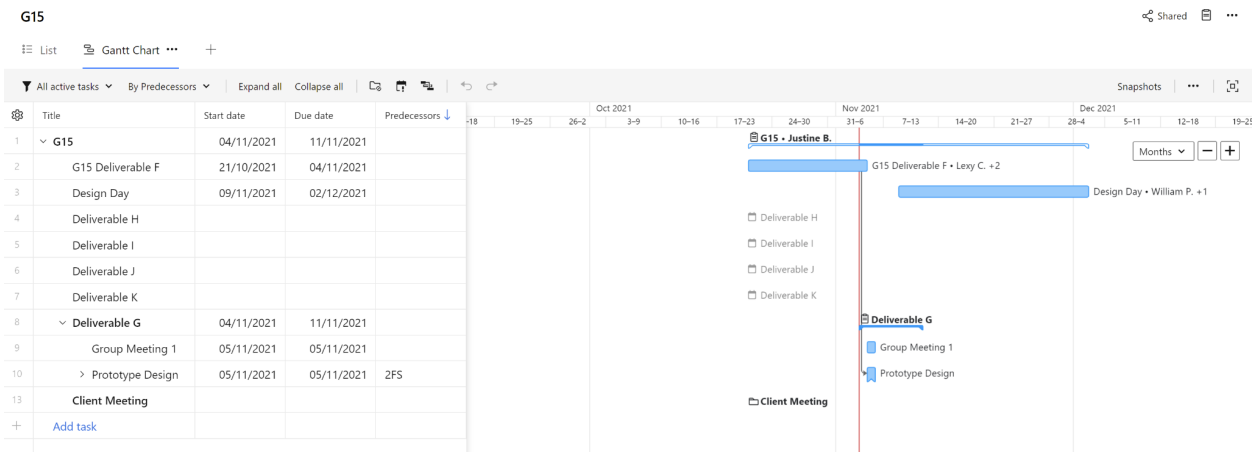
8 of 9

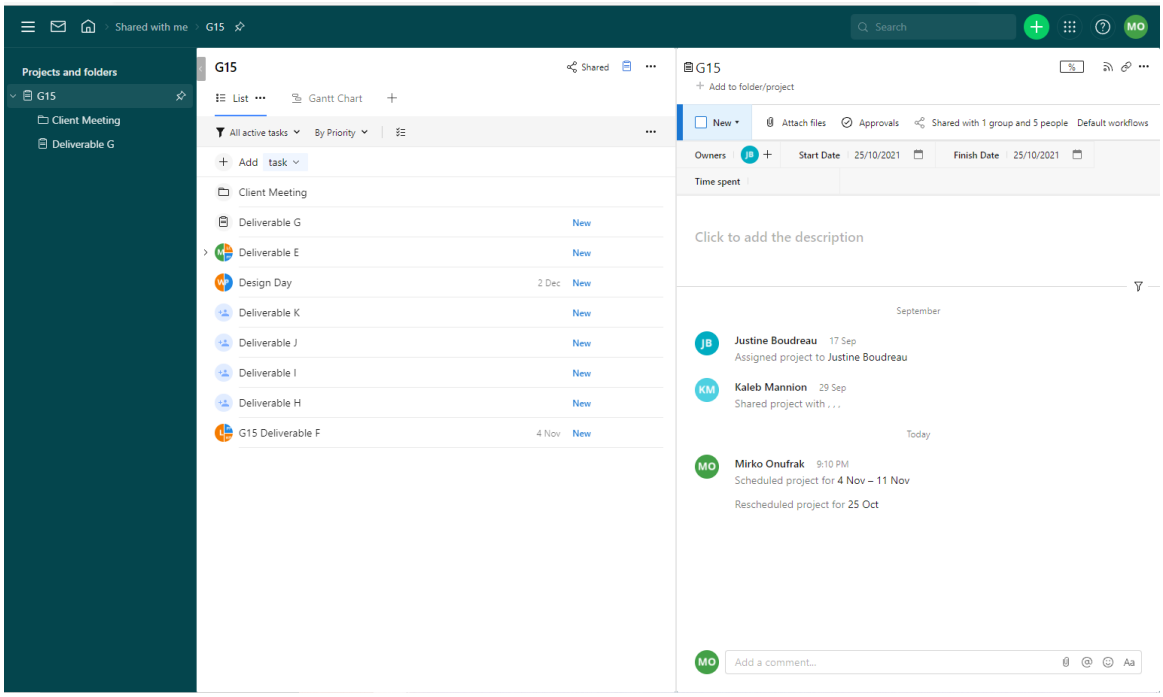
Below indicates the duration of the further testing phase to collect raw data from users. For timed message display, this could take three to four days because this is one of the main components and requires different methods to get the best and quickest results. The toggle buttons would be less than one day, once the buttons are established the goal is to continue working easily for the user. Lastly, the audio should take less than one day as well, once the audios play the corresponding songs, users can easily switch between music.

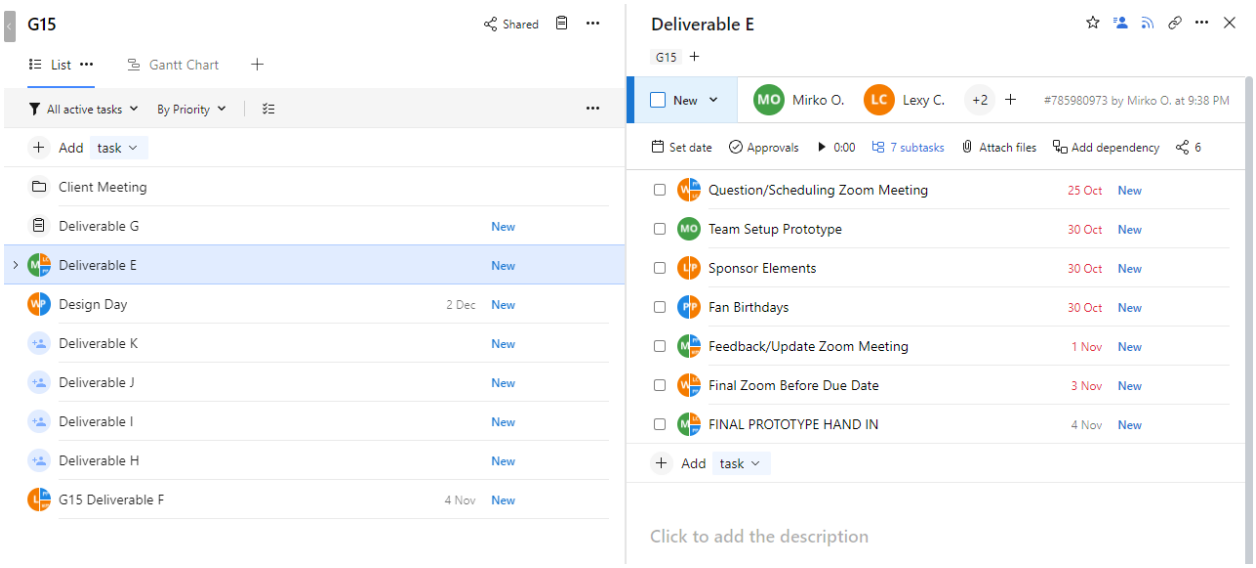
TEST PLAN PT 2

ID	duration	Result
1	3-4 days	code provides equal message display
2	1 day	indicates correct button in use.
3	1 day	plays correct audio in relation to button.

Updated Wrike Picture:






G15
Shared
List
Gantt Chart
All active tasks
By Priority
Add task
Client Meeting
Deliverable G New
Deliverable E New
Design Day 2 Dec New
Deliverable K New
Deliverable J New
Deliverable I New
Deliverable H New
G15 Deliverable F 4 Nov New
Deliverable E
G15
New
Mirko O.
Lexy C.
+2
#785980973 by Mirko O. at 9:38 PM
Set date
Approvals
0:00
7 subtasks
Attach files
Add dependency
6
Question/Scheduling Zoom Meeting 25 Oct New
Team Setup Prototype 30 Oct New
Sponsor Elements 30 Oct New
Fan Birthdays 30 Oct New
Feedback/Update Zoom Meeting 1 Nov New
Final Zoom Before Due Date 3 Nov New
FINAL PROTOTYPE HAND IN 4 Nov New
Add task
Click to add the description