Wio Link For SVH

GNG 2101 - Deliverable G

Submitted by Team E24

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Introduction

The purpose of this document is to develop a new prototype for our wio link system in hopes of advancing towards our final product. The new prototype will be generated using feedback from the previous prototype. Ideally, the new prototype will satisfy the client's conceptual demands and improve from the previous tests. As a result, the success of the prototype will then be determined based on comparisons to our previously stated target specifications. Finally, the project plan will be updated to define our next steps.

Client Feedback:

The objective of the third client meeting was to demonstrate the functionality of our first prototype and retain as much feedback as possible. With this criticism, we were able to investigate possible improvements and extensions to the product. Accordingly, the list below refers to the client's criticisms:

1. Rethink the formatting of the patient's user interface.

After analyzing this topic, it was discovered that the client would like the buttons to be enlarged so that it fills the user's screen. Otherwise it will take away from the demeanor of the product and create a slight inconvenience for people with limited movement who may struggle to click a smaller button. Furthermore, the client would like the buttons to be highlighted according to their functionality and priority. For example, the call nurse button is red to receive maximum attention for emergencies. Also, he would like us to add preset channels to the TV function if there is time to do so.

2. Simplify nurse menu.

Simplification in this case involves changing the name of the functions menu to something more appropriate so that it does not confuse the user. Additionally, the client would like the interface to be usable using keyboard shortcuts rather than solely mouse inputs.

3. Develop a call nurse relay.

The purpose of the relay is to activate the call nurse command through some given input on the wio link interface. With this, it should be constructed to function within the hospital's current system that ideally works without the use of wifi to avoid any problems with power outages.

Aside from these points, the client liked the general concept of prototype 1. As a result, this information will aid in the development of the next prototype.

Prototype 2:

Currently, we have a user interface that was coded using Node-Red in order to ensure simplicity within the design. The interface has a simple two menu function. The first menu is the client's interface; it displays a "call nurse" button, a technical support button and the option(s) pre-selected by the nurse to fit the needs of the patient. In the second menu, the nurse can select the prefered input through the provided sensors, depending on the patient's needs. Currently, the interface is very easy to use and simple to understand. The program is still easily customizable, allowing 3 different inputs at the moment, without limitations.

Using the feedback from the most recent client meeting, our group was able to generate the following prototype to account for the desires of the client. In order to demonstrate the prototype, we have created a short video depicting the basic functionality of the system.

https://www.youtube.com/watch?v=FXfa4tyakBg

With this new prototype, we were able to target the key points that were made at the previous meeting regarding our first prototype. This prototype still follows the same structure as the previous model, however it includes small adjustments to the formatting and introduces improved functionality. However, this prototype focuses specifically on the interface and the call nurse because these were identified as the priority components.

The first change made to the design was the enlargement of buttons displayed on the screen. The purpose of this simple adjustment was to simplify the identification of each button and establish a larger area for patients to select an input. Subsequently, the buttons are colour coded to display urgency.

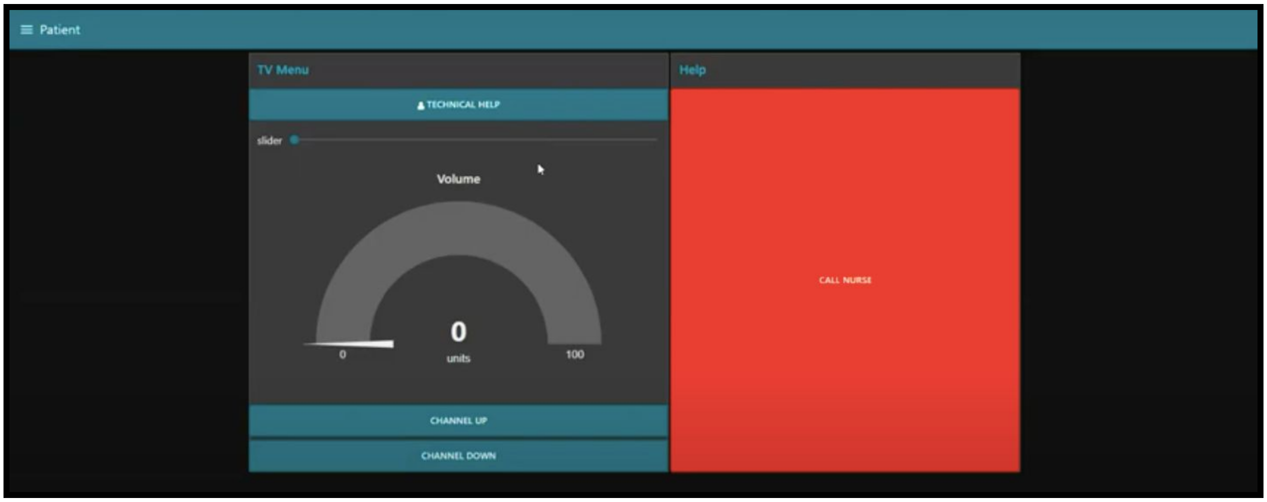


Figure 1: Patient User Interface

The criticisms referring to the nurse interface simplification required a simple correction involving terminology. Previously, the list of actions given to the patient was labelled as "functions", however the client made it clear that this may confuse some users, and therefore he would prefer a change just to ensure simplicity. With this, we changed the label to a more appropriate identification, “Patient Features”.

Additionally, we were instructed to construct a call nurse relay that could function with the hospital’s pre-existing system. The performance of this newly added component is demonstrated in the youtube video above. Essentially, our prototype sends an email to a user when the call nurse button is selected to simulate the hospital’s process because we are unable to test the system at the hospital due to COVID-19 restrictions. Unfortunately, this also means that it is difficult to find a way to implement this concept without the use of wifi because we don’t have the equipment readily available to us.

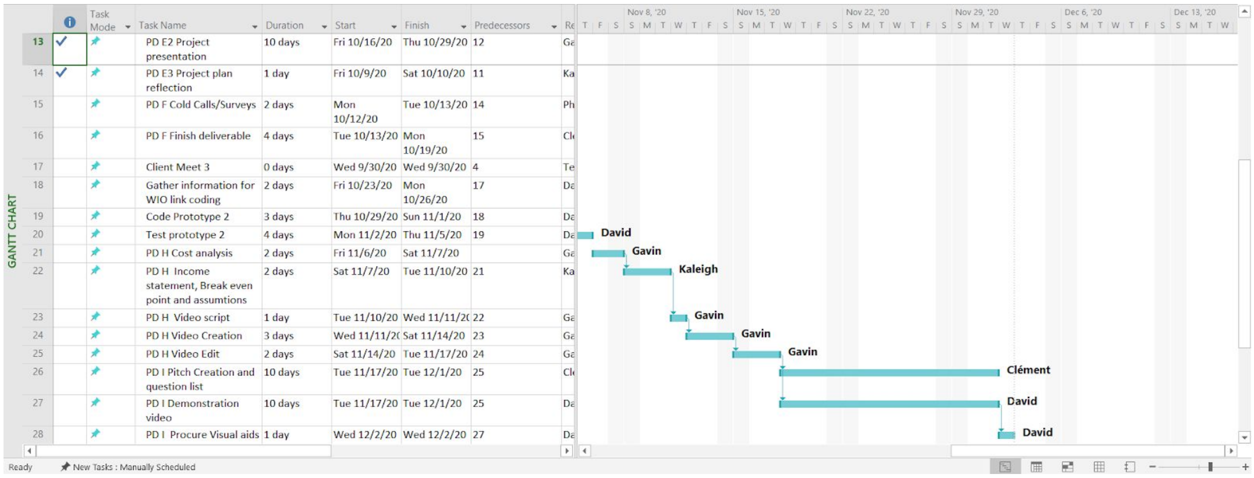
Testing Process:

The testing process for this prototype focused on two previously made target specifications. The first being the actual functionality of the call nurse button, where we attempt to create a relay that connects the call nurse button to an external source that notifies the user. For this test we decided to use an emailed alert to simulate the hospital’s system. This test can be seen in the video above. Next, the ease of use was tested by individually asking family members to use the patient interface to complete basic tasks that an actual hospital patient may use. For example, we asked them to call the nurse, or to change the volume of the television. The following table documents our results.

Topic	Expected Results	Actual Results
Nurse notification relay	When the call nurse button is selected on the screen, the user will be prompted that an alert was sent, and they will receive an email as the simulated alert.	When the call nurse button was activated, the user was prompted for its activation, and an email was received. Therefore this matched our desired results.
Patient ease of use	Each family member should be able to easily navigate the user interface by looking through options on the screen. They should be able to find features when asked to find and click them.	As each family member was introduced to the user interface without any previous instruction, they were able to navigate through the features when asked to select certain functions. This result was expected.

Table 1: Results Table

Project Plan Update:



	ℹ	Task Mode	Task Name	Duration	Start	Finish	Predecessors	Re
13	✓	📌	PD E2 Project presentation	10 days	Fri 10/16/20	Thu 10/29/20	12	Ga
14	✓	📌	PD E3 Project plan reflection	1 day	Fri 10/9/20	Sat 10/10/20	11	Ka
15		📌	PD F Cold Calls/Surveys	2 days	Mon 10/12/20	Tue 10/13/20	14	Ph
16		📌	PD F Finish deliverable	4 days	Tue 10/13/20	Mon 10/19/20	15	Cl
17		📌	Client Meet 3	0 days	Wed 9/30/20	Wed 9/30/20	4	Te
18		📌	Gather information for WIO link coding	2 days	Fri 10/23/20	Mon 10/26/20	17	Da
19		📌	Code Prototype 2	3 days	Thu 10/29/20	Sun 11/1/20	18	Da
20		📌	Test prototype 2	4 days	Mon 11/2/20	Thu 11/5/20	19	Da
21		📌	PD H Cost analysis	2 days	Fri 11/6/20	Sat 11/7/20		Ga
22		📌	PD H Income statement, Break even point and assumtions	2 days	Sat 11/7/20	Tue 11/10/20	21	Ka
23		📌	PD H Video script	1 day	Tue 11/10/20	Wed 11/11/2(	22	Ga
24		📌	PD H Video Creation	3 days	Wed 11/11/2(	Sat 11/14/20	23	Ga
25		📌	PD H Video Edit	2 days	Sat 11/14/20	Tue 11/17/20	24	Ga
26		📌	PD I Pitch Creation and question list	10 days	Tue 11/17/20	Tue 12/1/20	25	Cl
27		📌	PD I Demonstration video	10 days	Tue 11/17/20	Tue 12/1/20	25	Da
28		📌	PD I Procure Visual aids	1 day	Wed 12/2/20	Wed 12/2/20	27	Da

Ready
📌 New Tasks : Manually Scheduled

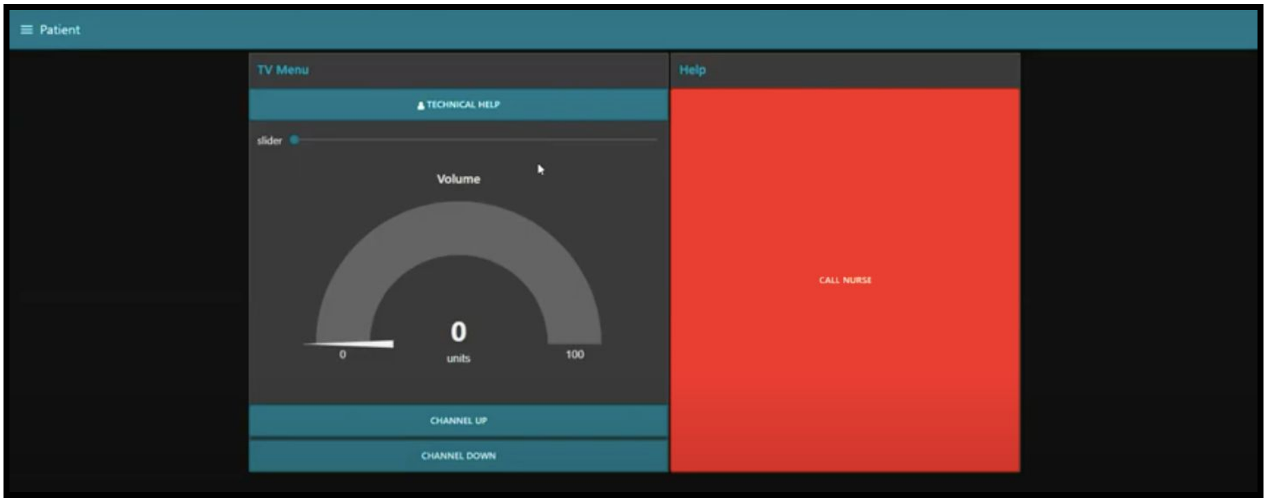
Figure 2: Project Plan

Conclusion:

Conclusively, the design feedback has allowed us to enhance our view of the project and improve certain aspects. With this, we were able to develop our second prototype to properly demonstrate a more enhanced concept of our system. Subsequently, we were able to test our product to ensure functionality and ease of use. Furthermore, the project plan depicts our future goals as we move towards the final product.

Appendix:

Youtube Link: https://www.youtube.com/watch?v=FXfa4tyakBg



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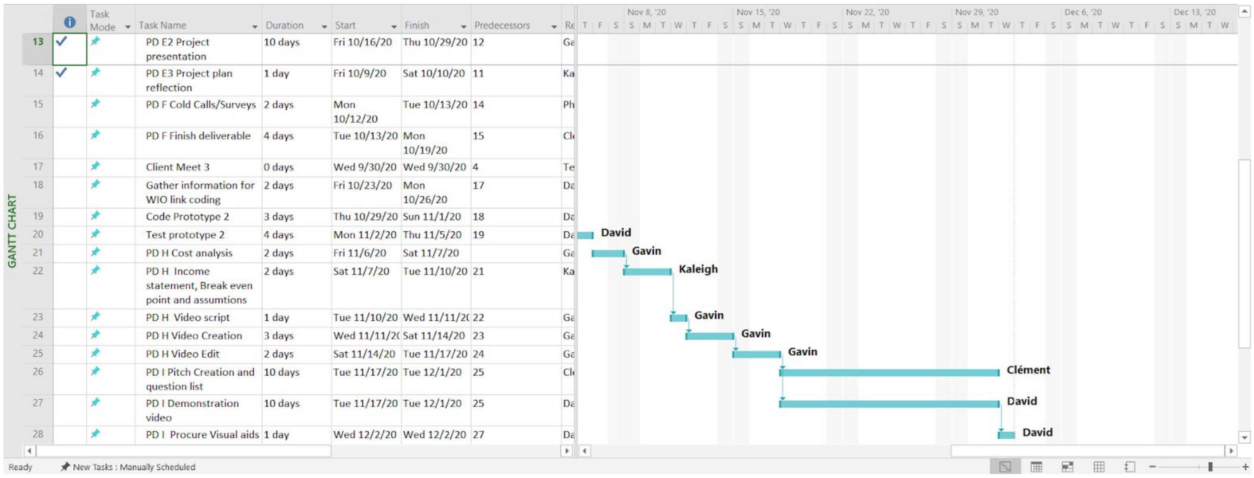

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