Project # 3

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Graphic Techniques for Software Design: GRDN2000

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<u>Introduction</u>

We have developed the graphic representative for the airplane system controls. The most important factor for creating these controls is considering ergonomics factors to make the system readable without fatigue. We did some researches to more about the ergonomic concept, and we created four wireframes and illustrator for this system.

GRDN2000

Graphic Techniques for Software Design

Project #3

Design of Engineering Controls

Proposal and Description

The system does Airplane Control. It does not have touch screen, and the size of

the monitors are as regular size of the computers. The application tracking

the airplane's locations, tracking the weather of the airport, and it allows the

users to change the setting for the alert if there is a problem with the airplane and

weather. The failure of the system could come from the user's mistakes and

the consequence could be crash the plane. If the design of the screen's location

is not clear in aspect of the colors or distinguishing between the air planes, the

risk of the user's mistakes is high. The color of the screen should be suit for the

users who wants to track the airplane for long time, and it should not cause eye

strain.

Research

a. Ergonomics is having the knowledge of the human abilities and limitations,

and apply that knowledge to designing a system, product, …for making better

people's interaction with them. It reduces the risk of harm or injury in the

workplace and environments.

b. The ergonomic issues, which is relate to this system, is safety, comfort, threats to privacy, and legal liabilities. All the ergonomic issues are very important for this system because they are relating to the human lives. If the user makes a mistake because of the eyes strain or fatigue decision, it can cause a catastrophic plane crash.

For having safety in this system, the steps for getting data should be simple and quick in order to minimize the mistakes especially when the user is in the rush situation and need to find an information as soon as possible.

Related to the comfort, considering which colors the system has for the interface is very important to prevent eyes strain because of monitoring the airplane's situations for a long time. Also, having less data and prioritized and flow information in a screen can help to the user to find necessary data. It is so important in an air traffic control to keep some information private, so the design of the system should be in the way that does not allow to the entire employee to have access to all information about the flights and the airplane specifications. Another factor that we should consider for this system is legal liabilities. For creating a system like this, everybody is responsible during developing because having even a small mistake can cause horrible accidents. Therefore, designers for the interface are responsible to make a easy to use system to help the users work with the system without decision fatigue.

Technical Standards

| Fonts	Times New Roman Helvetica Arial
colors	Gray, white, Black, Yellow, Green, Blue
Number of panels	2 panels in the Main Screen page 2 panels for the Readouts page 2 panels for the Input Controls page 2 panels for the Warning Box page
Navigability	By clicking on any buttons on the Main Screen page, it goes to second level page. By clicking on Ok, Save and Reset buttons on the Input Controls page all input will save or reset, and airplane adjusts with these entered data. By clicking on the On, Off, Start, Stop buttons on the right panel, the camera will turn on/off, start, stop to work.

Content Plans

1- Select function: included eight buttons for controlling eight factors of airplane specifications.

2- Camera button

3- Map button

4- Call center button

5- Ok, Cancel button for choosing the Camera, Map and Call Center options.

6- START, STOP, ON, OFF buttons for controlling the Camera Screen on right panel.
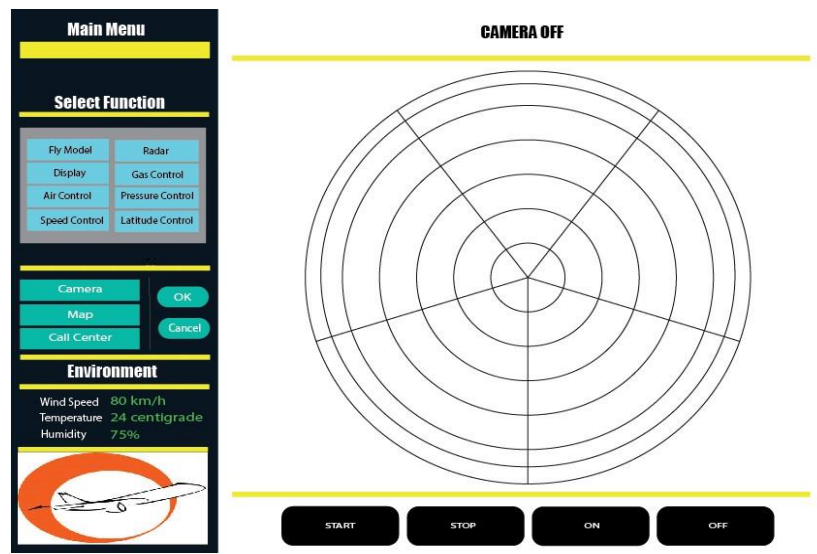
1- Readouts page: left panel with black background for reading the data of airplane specifications.

2- Yellow/Red light: when oil life decreases, this light becomes yellow then red.

3- START, STOP, ON, OFF buttons for controlling the Camera Screen on right panel.
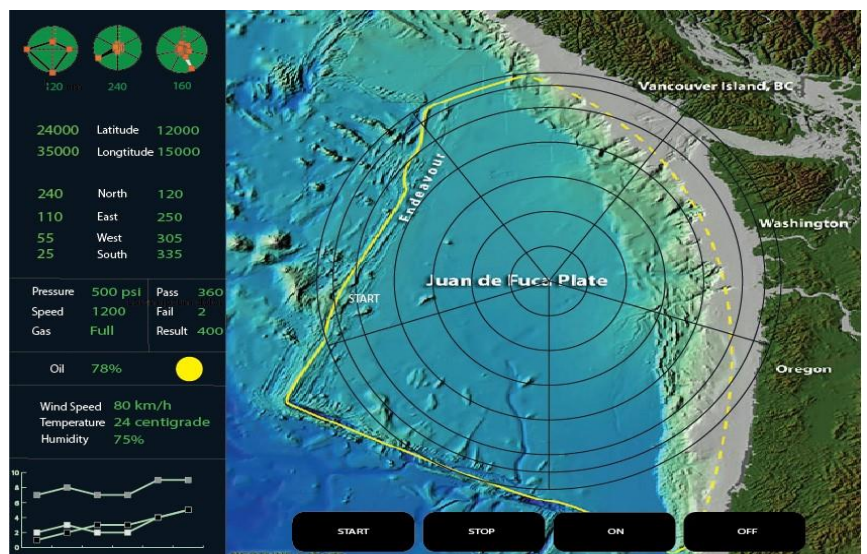
1- Pressure slide bar

2- Speed slide bar

3- Latitude slide bar

4- Eight input for controlling latitude: North, East, West, South

5- Three input for Pressure, Speed, Gas

6- Ok, Save, Reset buttons for setting the entered data in section 4 and 5.

7- START, STOP, ON, OFF buttons for controlling the Camera Screen on right panel.
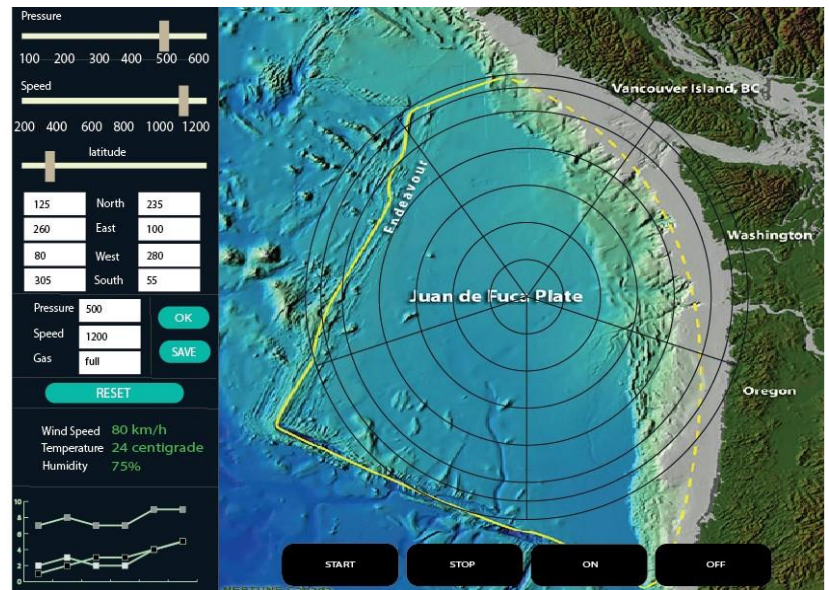
1- Red lights: when any measured property of airplane reaches the critical value, they will turn on.

2- Popup alert: when three red lights turned on, an alert popup with related message will be shown on the screen.

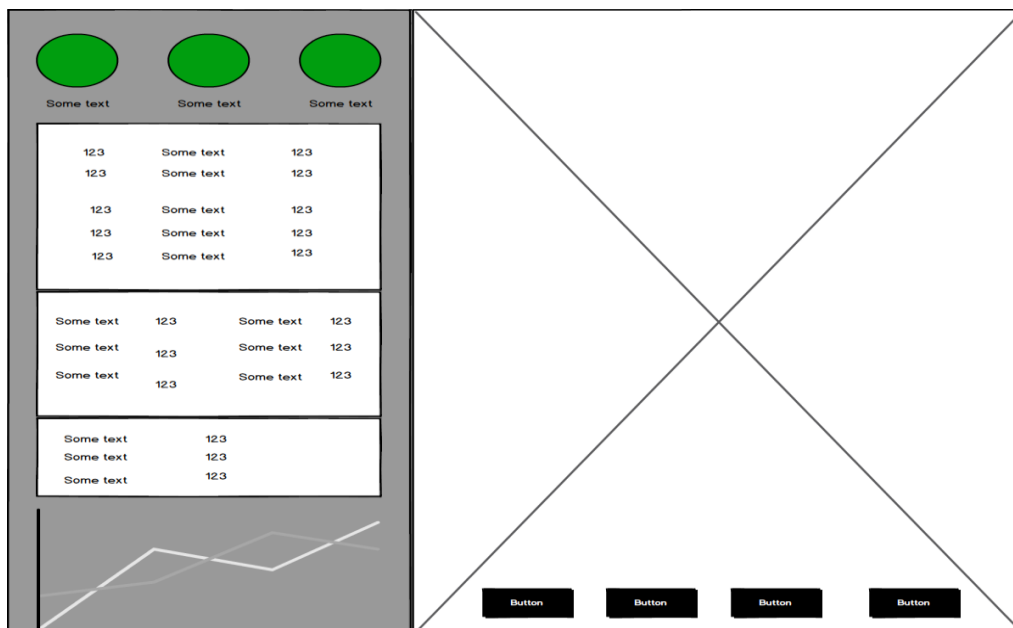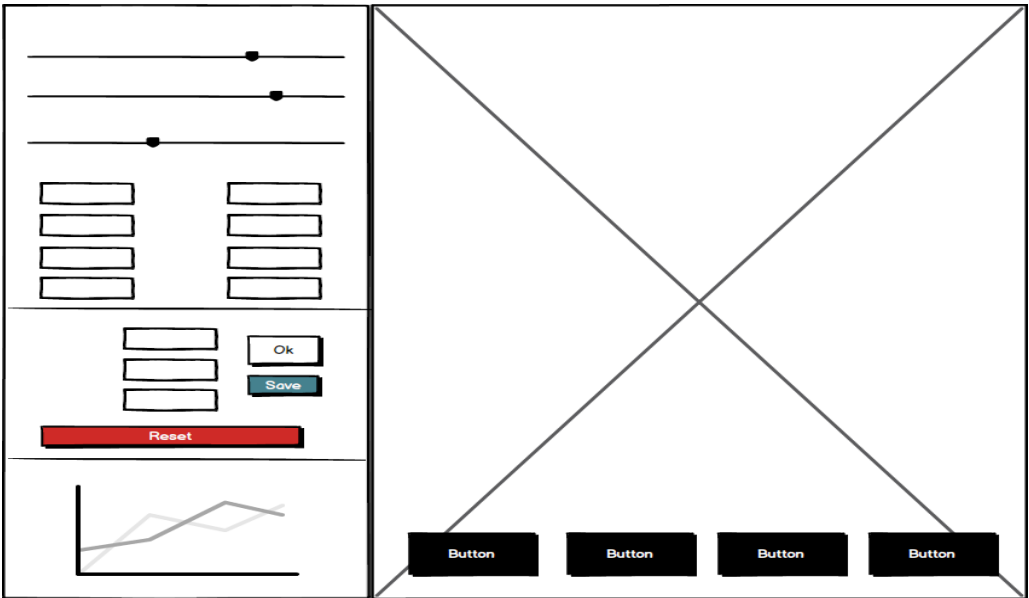3- START, STOP, ON, OFF buttons for controlling the Camera Screen on right panel.
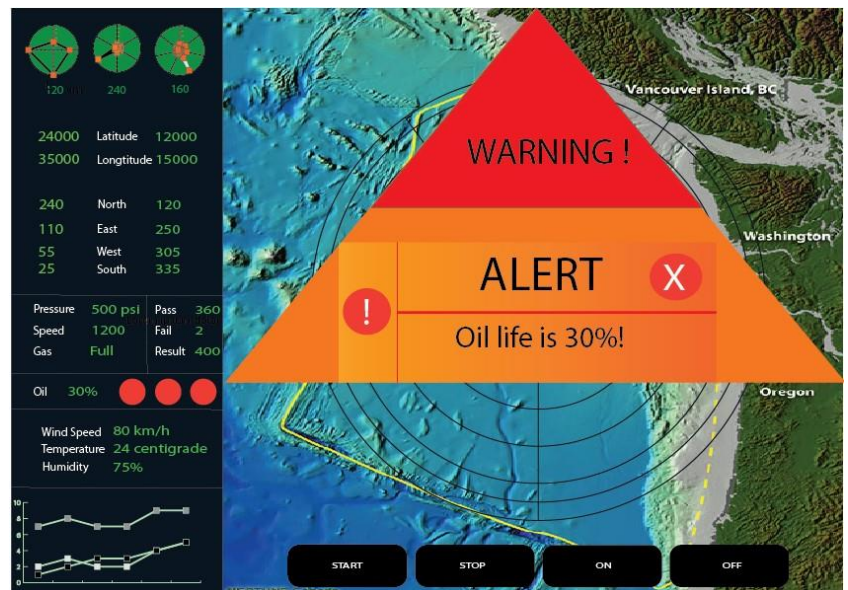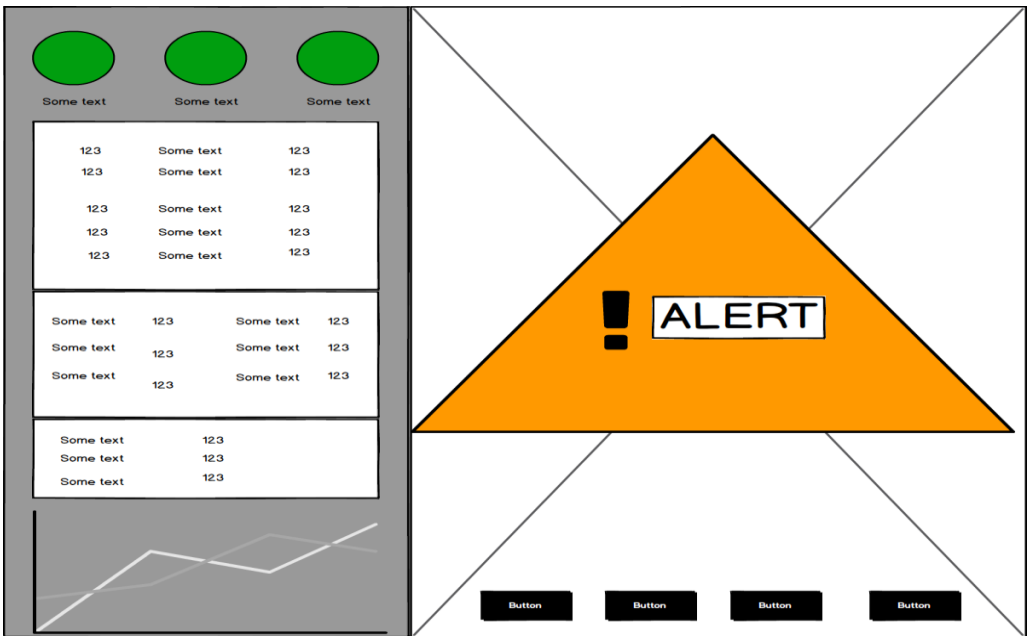
Wireframes

Main Screen
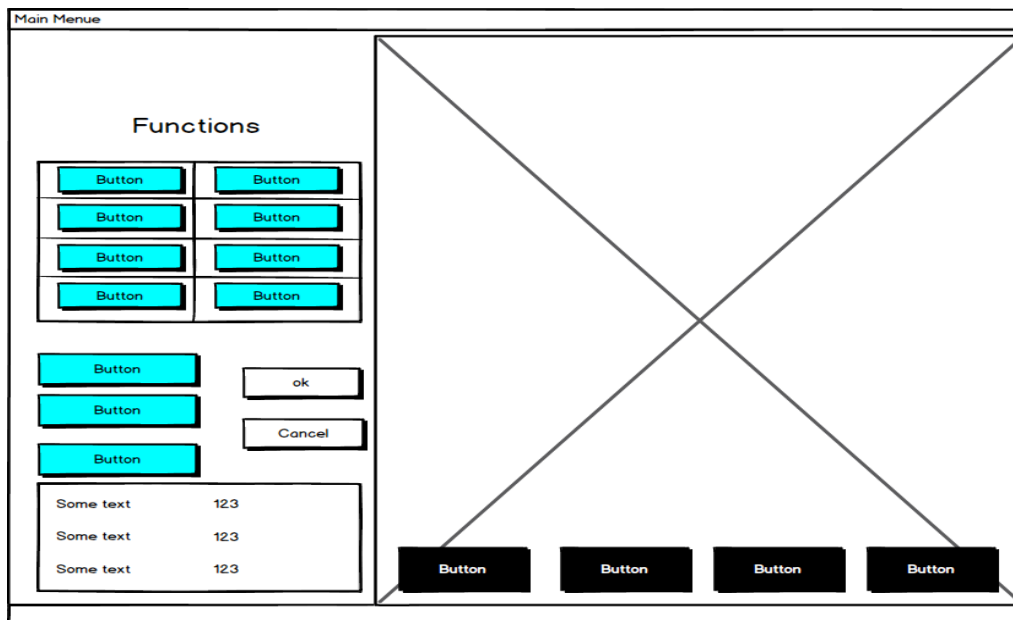
Readouts page

Input Controls
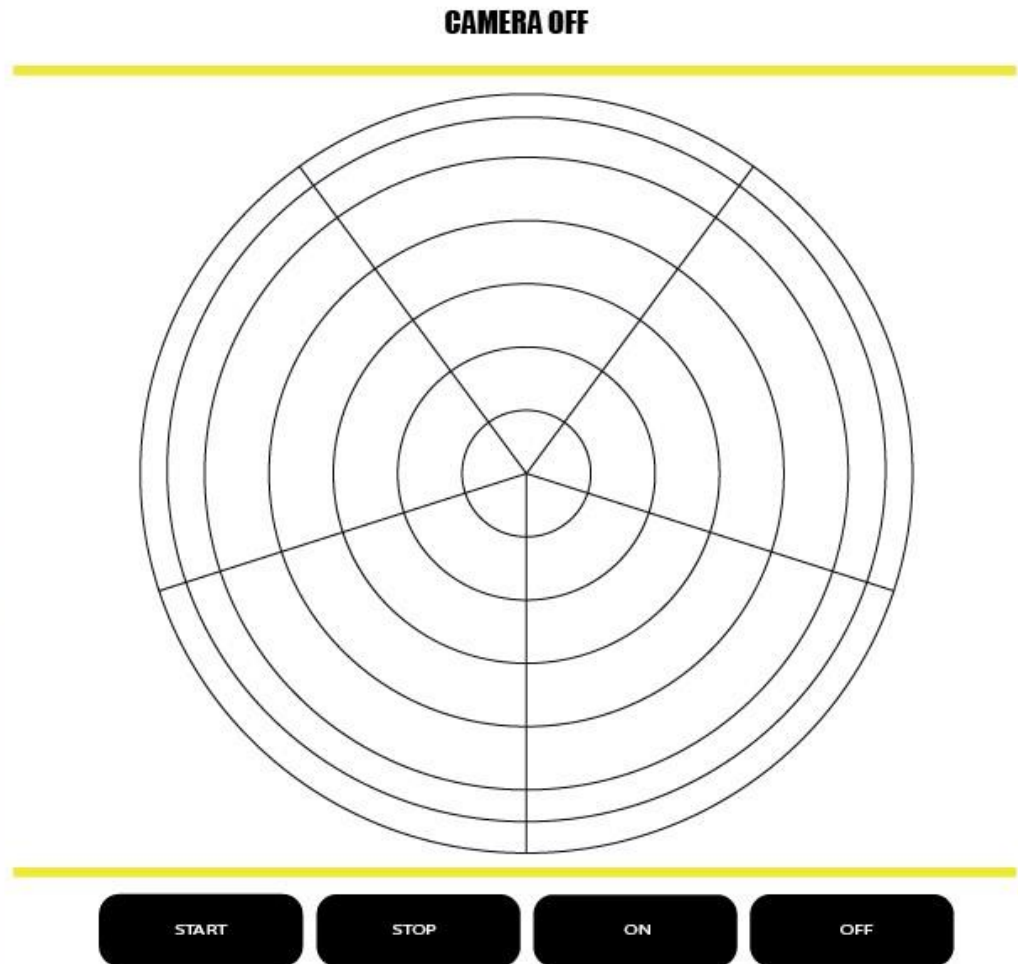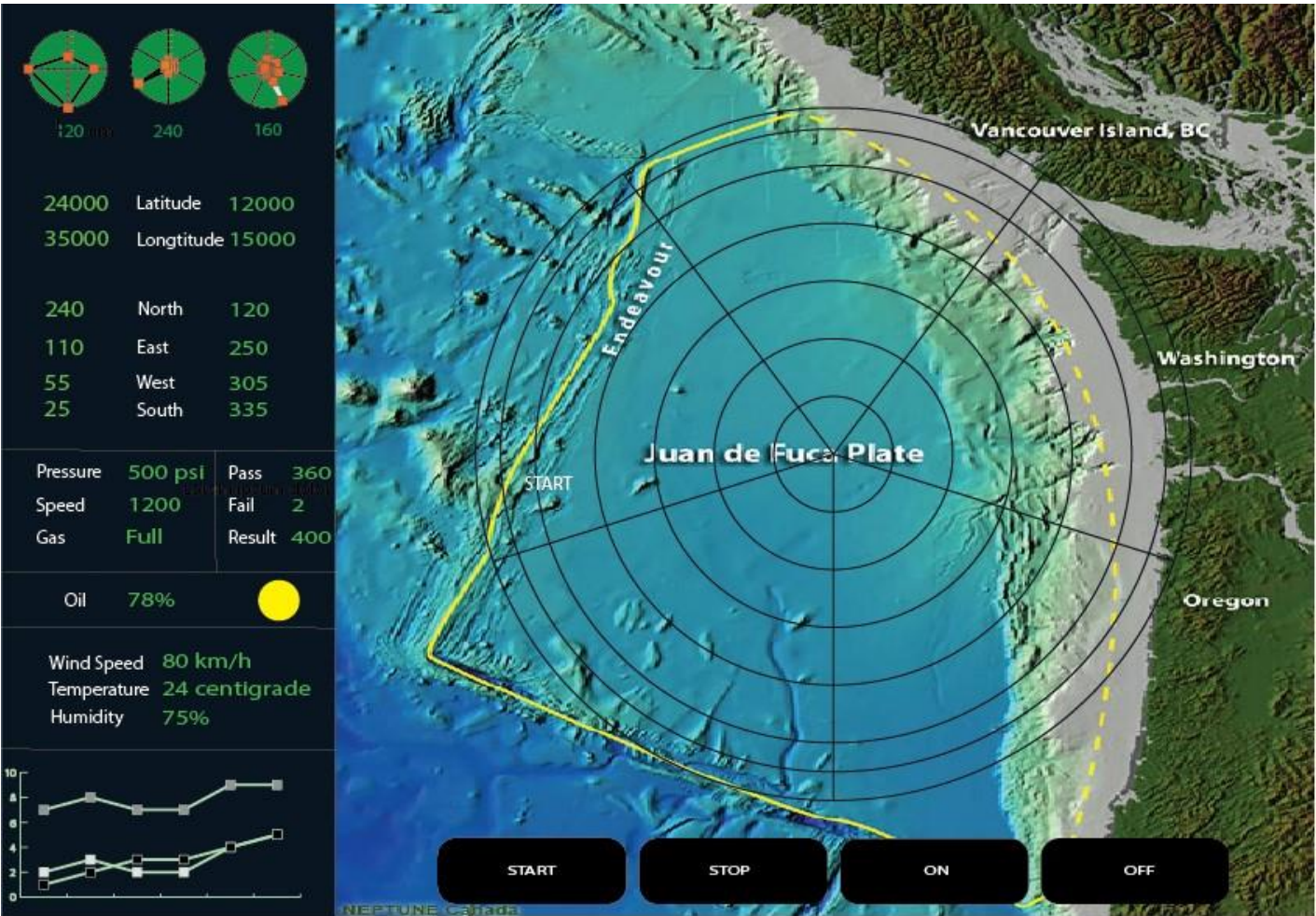

Warning Box Popup

Four Illustrator Prototypes to include

Main Screen

Main Menu

Select Function

Fly Model	Radar
Display	Gas Control
Air Control	Pressure Control
Speed Control	Latitude Control

Camera

Map

Call Center

OK

Cancel

Environment

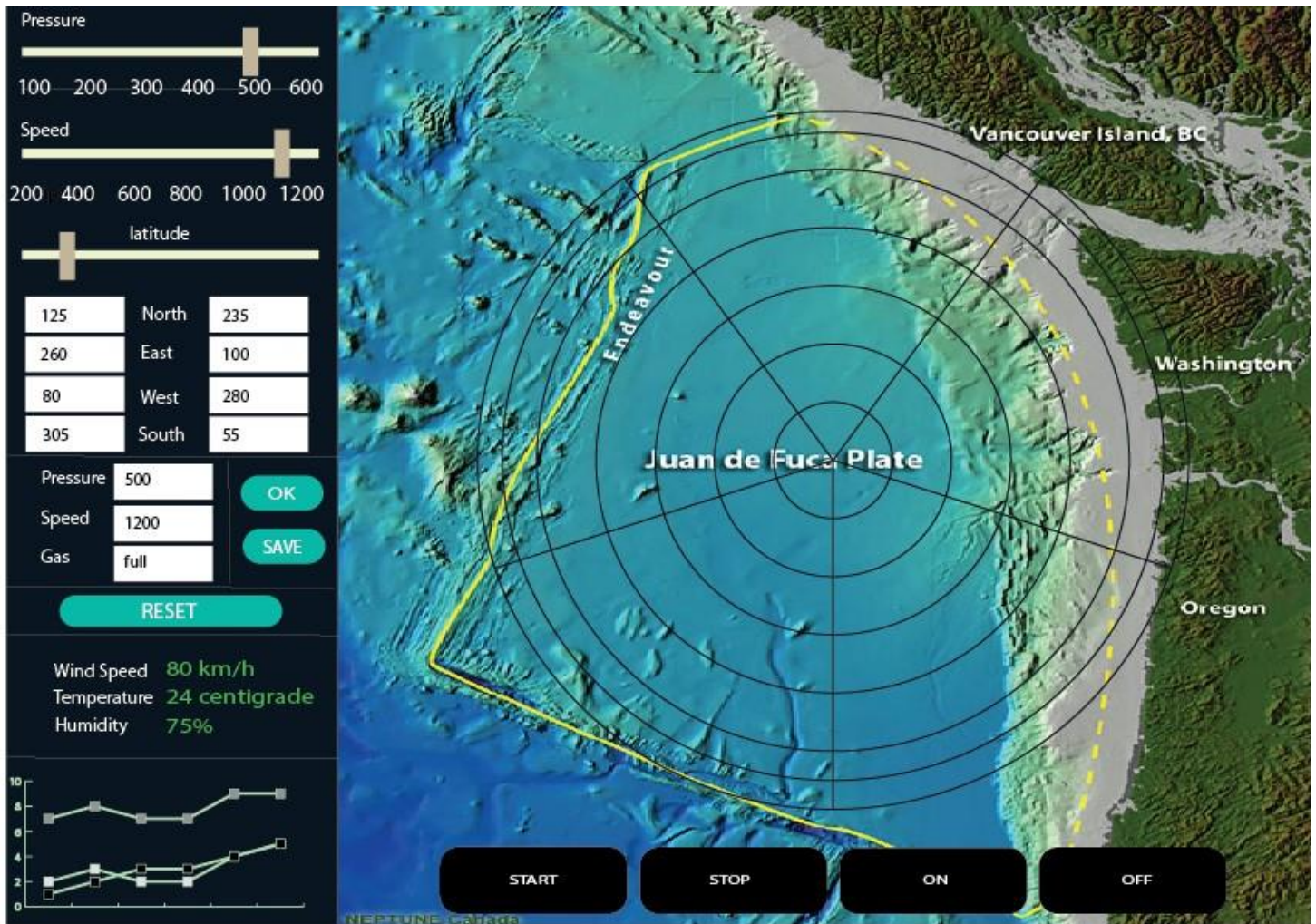|	
Wind Speed	80 km/h
Temperature	24 centigrade
Humidity	75%

CAMERA OFF

START   STOP   ON   OFF

Readouts page

Input Controls

Warning Box Popup

<u>Conclusion</u>

In order to create a system like the airplane controls, considering the ergonomic in the UX part can reduce lots of problems and mistakes that could happen during using the system. We considered four ergonomic issues that can be impacted by the system that are included safety, comfort, threats to privacy, and legal liabilities. By considering these factors, working with the airplane control system has less mistake probability for the users.