Team Name: Techblazers

Date of Submission: 02/20/22

Meeting Date & Time: February 20th, 3 pm – 5 pm

Meeting Location: Microsoft Teams

Meeting Duration: 2 hours

|  |  |  |
| --- | --- | --- |
| Team Members | X = Present | Notes |
| Victor Siooh | X |  |
| Emmitt Brandt | X |  |
| Chief Boateng | X |  |
| Slate Jordan | X |  |
| Chase Williams | X |  |

Progress:

Team accomplishments for the week: A short narrative, typically 1-2 paragraphs, should include decisions made by the team as a result of the team discussions, and how the team arrived at the decision.

We were able to determine the conductive material form that we will use for the mechanical switches. In addition, we obtained our keyboard kit on schedule with our work statement. We also determined what issues need to be resolved such as inserting a wire through the center column of the mechanical switch.

Individual contributions: A brief narrative (1-3 sentences) made by **each team member** summarizing their respective activity for the past week.

Victor Siooh: I was able to review Autodesk TinkerCad tutorials and master some of the fundamentals through the lessons that were given from the website. In addition, I was able to do some minimal research on different conductive sprays that may be acceptable based on their characteristics. I also created different compartment designs based on the possible availability of the inside of the physical keyboard.

Emmitt Brandt: I was able to program the window to ignore clicks and send them to whatever application is behind them. I was also able to figure out how to add custom typefaces to the libraries I was using and import Garamond font, one of the ones suggested for the visually impaired.

Slate Jordan: Developed some ideas about how to get conductivity from under the PCB to the keycap. Worked on prepping the hardware for initial testing of Arduino code with I2C multiplexer. In addition, I tested the connections between each mpr121 sensor on the same I2C bus. Researched and found a hot swappable keyboard PCB kit and keys as well as ordered them. Looked into different conductive coatings to determine which would be most ideal for our application comparing properties like surface conductivity, thickness, hardness, etc. Lastly, I did research on how the I2C multiplexer works to modify the Arduino code.

Chase Williams: I researched how resistivity in a conductive spray impacts the change in ADC counts measured by the sensor, researched different ways we can route wires to the inside surface of a key, and figured out how to integrate the multiplexer, sensors, and microcontroller. I created code to detect touches from all 61 keys with a multiplexer and code that allows the user to adjust the sensitivity of the sensors.

Chief Boateng: Completed research for the software development tools which could be used to develop the windows application. Decided to go with Visual studios 2019 using Python development to improve simplicity since the keyboard code was already completed in python language. Also completed the front-page draft design of the application along with the functions that would be used within the app. Began going through a tutorial on Python app development using visual studios.

NOTES:

1) A team member present at the meeting but making no contributions risks a ZERO for the weekly minutes.

2) A team member missing the meeting without providing data to the team in advance of the team meeting risks a ZERO for the weekly minutes.

3) A team member missing more than two weekly team meetings and having no significant contact with the team risks a ZERO for weekly minutes and a ZERO for any assignments completed by the team when absent.

Project Tracking (current work): Assignments and activities are to be tracked until completed.

|  |  |  |  |
| --- | --- | --- | --- |
| Team Member | Assignment | Due Date | % Complete |
| Slate Jordan | Testing on noise to signal ratio with copper tape under keycap setup. | 2/13/22 | 100% |
| Slate Jordan | Research viability of alternative methods to conductive keycaps. | 2/20/22 | 100% |
| Slate Jordan | Get hardware ready to test Arduino code with multiplexer and sensors | 2/27/22 | 50% |
| Slate Jordan | Looking into modifying switch to allow wire passthrough on bottom. | 3/6/22 | 15% |
| Slate Jordan | Figure out how to securely attach a wire to plastic covered in a conductive coating. | 3/14/22 | 5% |
| Chase Williams | Learn how to update the microcontroller code to increase touch detection sensitivity. Sharing different versions of the code that each have different levels of sensitivity for testing. | 2/13/22 | 100% |
| Chase Williams | Learn how to integrate the capacitive touch sensors, microcontroller, and multiplexer. | 2/20/22 | 100% |
| Chase Williams | Learn how to update the microcontroller code to detect touches from all the capacitive touch sensors | 3/14/22 | 50% |
| Chase Williams | Design how to route the wires to the inside surface of each key. | 3/6/22 | 40% |
| Chase Williams | Make a schematic for the integration of the hardware | 2/27/22 | 50% |
| Chief Boateng | Research on software tools to use to Develop the windows app | 2/8/22 | 100% |
| Chief Boateng | Design front page with other functions accessibility within the application | 2/13/22 | 100% |
| Chief Boateng | Go through Visual studios Python tutorial for application development and develop first page of the application | 3/13/22 | 15% |
| Victor Siooh | Construct a prototype 3D model compartment design through TinkerCad. | 03/18/22 | 5% |
| Victor Siooh | Determine spatial availability for compartment with new keyboard kit with assistance from Slate Jordan and Chase Williams. | 02/27/22 | 20% |
| Victor Siooh | Determining spatial availability for compartment with keyboard and organization of wires along with the location of copper material underneath key caps. (For original keyboard: Razer Blackwidow Chroma) | 02/06/22 | 100% |
| Victor Siooh | Research different custom keyboards to use for final product design. | 02/18/22 | 100% |
| Victor Siooh | Learned about Tinkercad software through tutorials for designing compartment | 02/13/22 | 100% |
| Emmitt Brandt | Design the keys themselves to be resizable | 2/27/22 | 15% |
| Emmitt Brandt | Add typeface size and type adjustment feature | 3/06/22 | 5% |

Plan (future work):

A brief description of the tasks and activities the team needs to accomplish work over the coming weeks. As team members pick up assignments, move from this table to the tracking table. Consider future work a running task-list with an expected due date for completion.

|  |  |
| --- | --- |
| Assignment | Due Date |
| Report over the pros and cons of conductive material for the keyboard caps. | 02/27/22 |
| Determine if there is enough space to fit all the hardware in the keyboard. | 2/28/22 |
| Add in the ability to save the changes to settings | 3/06/22 |
| Purchase conductive spray | 02/25/22 |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

Issues:

Include a brief description of issues the team has encountered, and potential resolutions for the issues. If the team would like staff to help with the issues, this is the appropriate place to request assistance.

Some of the issues we are dealing with is determining how to insert the wire after drilling a hole into the center column of a mechanical switch and placing it against the surface of the keyboard cap. Our swappable keys were also delayed, so we will need to readjust our schedule for testing with one of the mechanical switches.

Include the schedule for the next meeting:

Meeting Date & Time: 02/27/22

Meeting Location: Microsoft Teams