# Work Package

What is the work that needs to be performed?

Project is to create a Keyboard Finger Position Detector and Display, for a targeted audience who do not yet know how to touch type and for the visually impaired who have issues viewing characters on the keyboard. For my role in this development task, I am helping to develop the app, with the development of the front page, as well as the testing of the code which will be used

Brief work diagram for a summary of work that needs to be performed:
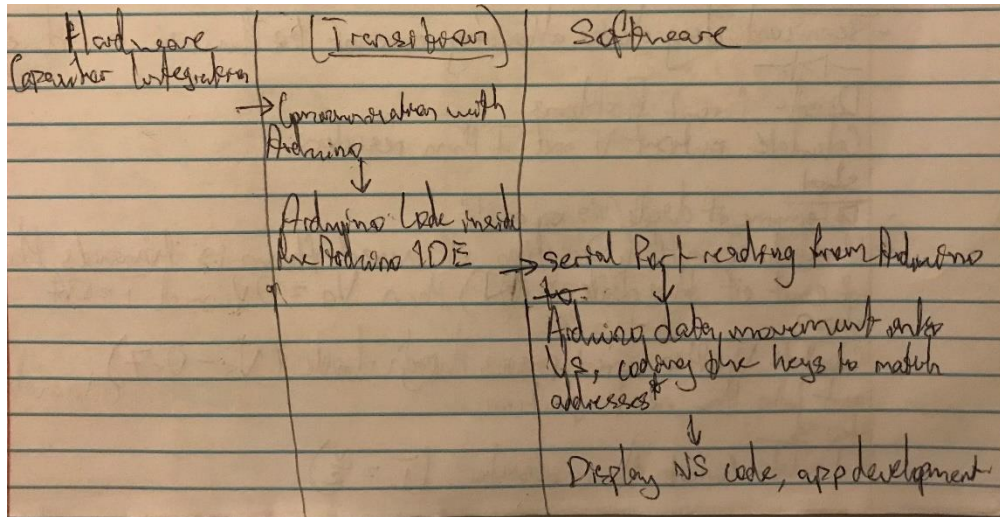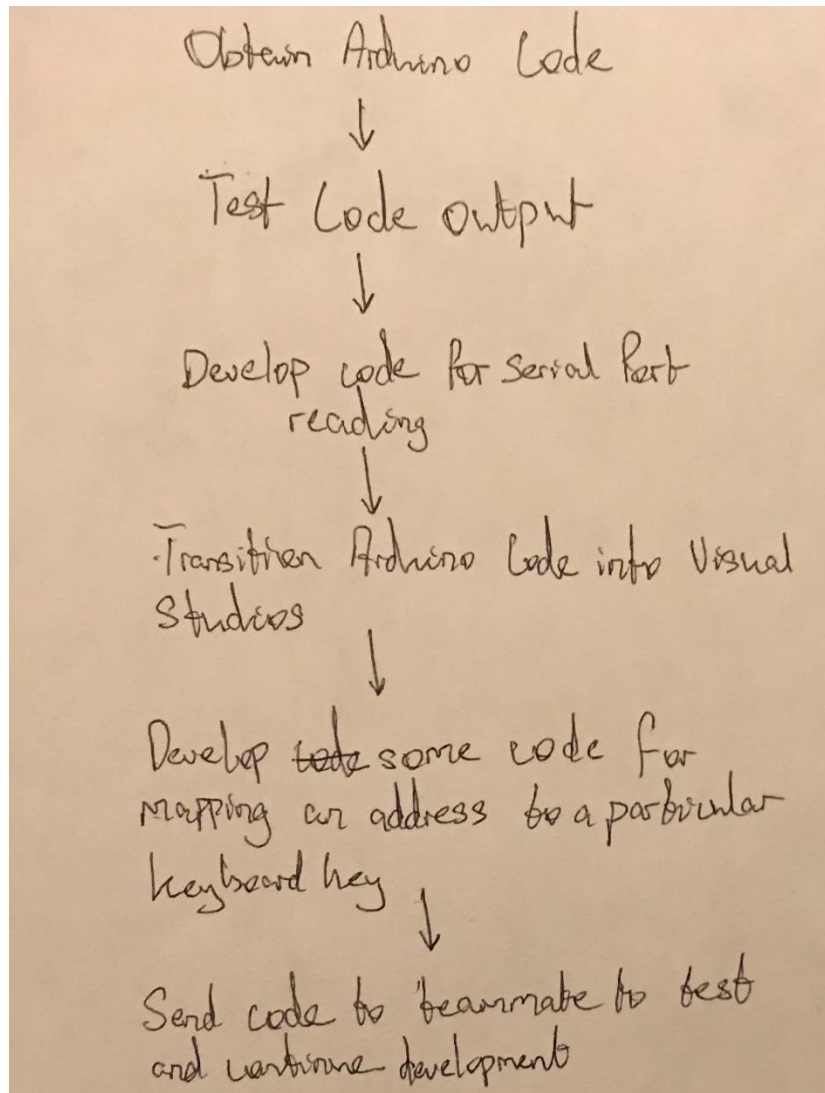

I am in a computer engineering major and computer science minor, so I am more geared towards software development. I have experience developing code to perform a task from a project which was done in an introduction to technology and innovation class. In addition, I am comfortable in programming using C++ with some C language programming proficiency. Knowledge on object-oriented programming would be required for, while development of the app would be done in python.

What resources are needed to perform the work?

To perform the work, the resources needed are:

- Arduino IDE
    - To analyze data that has been Read in from external boards and other piece of hardware used
    - Write Code required to perform tasks from the given data
    - To test output of developed code before transitioning to visual studios
    - To perform Serial Port reading
- Visual Studios IDE
    - To receive tested output from developed code in Arduino IDE
    - To develop code to know which key is pressed using data received from Arduino IDE

What are the steps (flow) of the work?

Obtain Arduino Code

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Test Code output

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Develop code for serial Port
reading

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Transition Arduino Code into Visual
Studios

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Develop ~~todo~~ some code for
mapping an address to a particular
keyboard key

↓

Send code to teammate to test
and continue development

- When opening the work package,
  - I obtain the Code which would be given to me through Arduino IDE.
  - I would then test the output to understand it and suggest any optimization.
- When performing work
  - Transition the Arduino Code obtained to Visual Studios
  - Develop some code for mapping the keyboard keys
  - Develop code on GUI for the app
- After Completion of work
  - Send code to teammate to test and suggest any optimization.

How is performance measured for the effort?

- Monitoring performance for my tasks
  - Measure efficiency of code developed
    - Method of coding used could affect the speed in which code is executed
    - Defensive programming can be used to improve accuracy

Monitoring indicators for trouble for tasks

- Code not performing targeted task
    - Syntax/Compilation errors captured with debug tool
    - Logic errors by going through code line by line, possibly sharing with teammate to double check

How is the work-product quality measured?

- Exception Handling (Defensive programming) used to monitor product quality
    - Pass Criteria
        - Goal is to ensure keys are read in the quickest possible way
        - Goal is to ensure keys are read in the most accurate way
    - Fail Criteria
        - Method used may be accurate, but not read in code quick enough
        - Method used may be quick but may not be accurate for all cases for reading in keyboard keys

How many hours does it take to perform the work?

- Test Code Output
    - Code must be tested for all possible addresses
        - Can take up to 16hrs (1 week of testing)
- Test code for serial port reading
    - Research serial port reading
        - Could take about 4-8hrs
    - Test code which could be used for the serial port reading
        - Could take between 8-16hrs
    - Total of 12-24 hours required (1.5 weeks)
- Transition Arduino code into Visual studios
    - Research on code transitioning methods (for most efficient method)
      Could take up to 16hours (1 week)

- Develop code for front page user sign in
    - Research on Python GUI programming tools which are used to make a desktop application (2 weeks)
    - Development of the code (4 weeks)
- Test code for user function settings
    - Testing each function use to enable smooth run of code (3 weeks)
- Develop code for mapping address to a keyboard key
    - Research on available methods for coding (For most efficient method) (2 weeks)
    - Test the code for mapping of some keyboard keys (2 Weeks)