ECE Senior Design Weekly Report

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Team Name: The Globetrotters Lab Section: 4, Thursday 12:30 PM

Week’s Task: Research conversions between coordinate systems for QGIS, research larger but cheap alternatives to our current 7” display, and research methods to pass arguments and call functions between JavaScript and Python code.

Results:

* Found a function that would convert between WGS-84 GPS coordinates (the commonly known type) to Google Pseudo-Mercator, which is the one used by Google Maps and the one used in QGIS when using the Google Maps plugin. With these conversions, we are now able to easily convert from one longitude/latitude coordinate system to the other and enter it into the longitude/latitude field of QGIS, so the navigation should now work whether we decide to implement one or the other.
* In testing the GUI interface on the 7” display we recently received, we realized we may need to get a larger display depending on how we scale the elements, how much information is presented, and in general for better visibility from the user, since 7’ displays are typically meant to be used a couple of feet away from the user’s face. I was able to find a 10.1” display that costs around $80-90 and uses HDMI instead of the DSI port of the Raspberry Pi. If we continue on the projection route, this wouldn’t be a viable option because the projector would use the only HDMI port on the Pi. On the other hand, if we switch to the physical projection, it won’t be a problem as long as our budget is sufficient.
* Found a Python framework called Naked that would allow us to execute JavaScript functions contained in a Node.js file by simply running a Python method that references said functions. The only problem with this now is that we have not implemented Node.js into our web interface and it would make our work easier if we did not have to implement it. The goal remains to be able to call the JavaScript functions contained in the HTML of our web interface through Python only when it is necessary (i.e. every time the user requests a new location) instead of having to continuously poll the function every few seconds. If no alternative is found and we decide we still want to approach this route, then we will begin implementing it.