ECE Senior Design Weekly Report

Engineer’s Name: Piorence Abar Date: 04.27.17

Team Name: The Globetrotters Lab Section: 4

Week’s Task: calculating our transfer function to be used in our PID controller, mapping out the points of instability and the various Hall Effect outputs at certain magnet positions with Jake, finished team poster and final presentation.

Results: This week I mapped out the points of instability and the various Hall Effect outputs at certain magnet positions with Jake by turning our rig upside down and moving our magnet 1/4in each direction, north, east, south and west, until we reached instability. We found that at 3/4ths of an inch, or 3 blocks on a graph paper, our magnet went out of stability and was attracted to the magnet. With this information we found that we have about a half-inch leeway before our levitating magnet falls out of stability. With the Hall Effect output numbers mapped out, we were able to see exactly what parameters we would need when programming our microcontroller. I also worked on finishing our team poster and final presentation PowerPoint.

Lastly, I helped Mark and Brian as much as I could with implementing their code to control our H-bridges in order to achieve stability. We encountered numerous problems the closer we get to achieving levitation, but are continuing to work hard.