ECE Senior Design Weekly Report

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Team Name: The Globetrotters Lab Section: 4

Week’s Task: Winding coils, testing sensors that we currently have

Results: This week I worked on tweaking the parameters for our project. Chris found that using our preexisting coils from the old models would not be sufficient for our project because they could not handle the current we needed. Because of their inability to handle the load, they began melting. This helped me in choosing exactly how many turns and voltage we desired because previously, the number of turns I had calculated would require about 15.15V, out of our limit when it comes to choosing a power supply. As a result, I’ve determined the maximum number of turns we can get to before going over 12V would be around 450 turns. With this in mind I started winding the coils using a power drill and although not perfectly coiled like our preexisting coils, they still fit decently around the bobbins. I also worked on our rig using our new ring magnet with Mark. We placed the new large ring magnet underneath and placed our other one on top of the rig. We tied the magnet on four sides where there was enough leeway for the magnet to levitate without flying side to side. With this rig, we placed the globe on top to see how much weight would be supported just through the magnetic levitation alone without the stability coming from the Hall Effect sensors. Amazingly we found that the levitation could sustain upwards of 3lbs, well above what is needed for our project. Of course, we need to work on our stability but finding that the weight could be supported was a great sigh of relief. Lastly, I worked on testing the sensors that we had and figuring out how closely each one was to the other. We found that the readings were all different and as a result, are currently waiting for our new order of hall effect sensors to come in so that they will all be the same type and have the same specs.