**Conclusion**

Though we were able to build a transmitter accurately, we could not debug the receiver side of the flowchart and receive real data. We did not have any initial understanding of the flowchart blocks in GNU radio and over the course of the semester, through experimentation we began to truly understand the primary blocks that we needed to use. Because the documentation provided by the software was vague and confusing, we began to keep track of the block descriptions as we learned them ourselves and have created a document for possible use for future teams.

Through mathematical analysis and inspection of the graphs produced by the transmitter side, we were able to determine that our problem just be occurring on the receiver side of the flowgraph. We were only able to reason through half of the receiver side as we could not find adequate documentation for blocks such as the RMS or Short to Float in order to debug in time. In the future, a deeper look into these two blocks may be the key into solving this problem. Our final flowgraph is shown in appendix D and the results of it are shown in appendix E. Appendix E shows that though our data reads a simple “hello” from a text file, it receives a meaningless stream of bits.

And though code for the Hamming Code was written and completed in C, we were not able to find a way to create a block for in GNU radio. This meant that the Hamming Code was left out of the flowchart all together. However, we do believe that an encoder like Hamming Code would help obtain more accurate data when we do get the flowchart functioning. We spent much of the last few weeks of the semester debugging our flowchart and rapidly learning not only but data transmission but also about the software we were using. In the absence of a manual, we kept good record of all that we have learnt so that future teams can use our work and learning as a tool in the future.