

Final Project Proposal - Morse Code Translator

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1 Description

We are planning on making a Morse Code translator. Given a signal representing Morse Code, our translator will output binary for the corresponding alphanumeric letters. We would like to implement this on the FPGA such that we can press a button on the FPGA to make a Morse Code pattern and the FPGA will output the translated sentence in some way, likely using a peripheral board connected to it to display the ASCII characters.

For an MVP, we will make a basic Morse Code translator that will output the sentence given a simulated Verilog input in simulation. For our planned project, we will implement it on the FPGA and test it with our button presses. For a stretch goal, we will also make a section that can reverse the Morse code translation from the alphanumeric sentence back to Morse Code as well as implement that on the FPGA potentially using input from a keyboard.

2 Deliverables

- Decoder: The first and MVP of our project; as described above.
- Encoder/FPGA implementation: Depending on the difficulty of the decoder, we will choose one of these avenues.
- Stretch Goal: Peripheral input (i.e. qwerty keyboard) and other part of our proposed implementation.

3 Work Plan

We have approximately 2.5 weeks to complete this project, so we are scoping it to be about the size of a larger lab. As of right now, we are planning on having the first week before Thanksgiving break devoted to research and implementation of a decoder from Morse code to letters. We hope to be able to make a decision regarding the next step of our project once we dive in to the decoder, as we feel it will give us a more educated guess on whether we choose to go the route of FPGA implementation or encoding. Having this decision made by the start of Thanksgiving break will hopefully give us the bandwidth to complete the next step once we return.

- November 16-19: Research and proposal, discuss with Ben goals for the project and how they fit into the CompArch framework.
- November 17-22: Begin implementation of Morse decoder and come to decision regarding post-break work.

- November 23-29: Thanksgiving break
- November 30 - December 3: Finish up any loose ends with decoder and work on next step, check in with Ben on December 3.
- December 3-10: Finish up work and possibly complete implementation of stretch goal.

4 References

1. [Tool to learn Morse Code](#)
2. [State Machine Implementation of Morse Code to Letters](#)