Brodric Young

ECEN 340

Midterm Lab

Module Code:

A screenshot of a computer

AI-generated content may be incorrect.

Figure : clock\_gen module

A screenshot of a computer

AI-generated content may be incorrect.

Figure : gray\_counter module

A screenshot of a computer

AI-generated content may be incorrect.

Figure : gray\_counter\_top module

A screenshot of a computer

AI-generated content may be incorrect.

Figure : test bench module

A screenshot of a computer

AI-generated content may be incorrect.

Figure : test bench simulation

Functionality:

In the end the gray counter functioned 100% correctly. It took some time and effort to fix all the bugs in my code but it eventually functioned properly. I tested it in the simulation and also verified the functionality on the Basys3 board to make sure it was correct.

Simpler/alternative Method:

Another method of implementing this gray counter could have been by using a case statement for the next state forming logic. This behavioral style would be simpler than the data flow way of using the ands, nots, and ors it took to implement the next state forming logic from boolean equations.