ECEN 429: Introduction to Digital Systems Design Laboratory
North Carolina Agricultural and Technical State University
Department of Electrical and Computer Engineering

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Lab 1

0.1 Introduction

For this first lab our task was to familiarize ourselves with Xilinx Vivado Design Suite and the Digilent Basys3 FPGA Development Board that is used in this lab. During these tasks we learned how to configure the settings on Vivado for our board and how to load a program to the board. We also have three programming assignments for this lab. The first assignment was to write a simple VHDL program using an AND gate with two inputs and one output. The second assignment was to write a VHDL program using the car alarm example which that we derived in class. Our car alarm consists of 3 inputs using switches and 2 outputs using LED lights. The third assignment was to create our own design implementation and write a VHDL program using only 4 inputs and 3 outputs. For our third assignment, we elected to build an adder for two 2-bit numbers. Upon successfully completing this lab, we will be able to work comfortable translating our circuit designs and VHDL code to a Vivado project and implement it on the Basys3 board.