Class Kit Vending Machine  
Conceptual Design

Nidhay Patel   
Department of Electrical and Computer Engineering  
*Tennessee Technological University*   
*Cookeville, United States of America*  
*npatel45@tntech.edu*

Austin Sigg  
Department of Electrical and Computer Engineering  
*Tennessee Technological University*   
*Cookeville, United States of America*  
*aesigg42@tntech.edu*Dillon Williams  
Department of Electrical and Computer Engineering  
*Tennessee Technological University*   
*Cookeville, United States of America*  
*dswilliams42@tntech.edu*

Ryan Reed  
Department of Electrical and Computer Engineering  
*Tennessee Technological University  
Cookeville, United States of America*  
*rcreed42@tntech.edu*Michel Turpeau  
Department of Electrical and Computer Engineering  
*Tennessee Technological University  
Cookeville, United States of America*  
*mmturpeau42@tntech.edu*

# Introduction

Numerous devices are needed by hundreds of students each year for their ECE (Electrical and Computer Engineering) programs. The design and implementation of a vending machine that can loan out devices to students while keeping track of which students have done so will be the main emphasis of this capstone project. A student can enter their information into the machine, and it will keep track of who has borrowed each device (s). Students will be able to view and choose which gadget to remove with the help of LED (Light Emitting Diode) -equipped drawer system.

In order to fulfill the consumers' expectations, the class kit vending machine must adhere to a number of requirements. The machine must, first and foremost, have an Ethernet connector in order to maintain a secure line of communication with the office staff and prevent student data security breaches. For any device the ECE department inserts within the machine, the machine must be at least 10 inches long and wide. For the Eagle Card, student ID, class, and board number to be stored on the machine, a SQL (Structured Query Language) database must be present. If there is a power outage, the computer must have nonvolatile memory where the program and data are stored so in order for the machine to handle given set of specifications a detail design must be conducted to get the desired functionality machine.

# Literature Review

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1. SQL Database:
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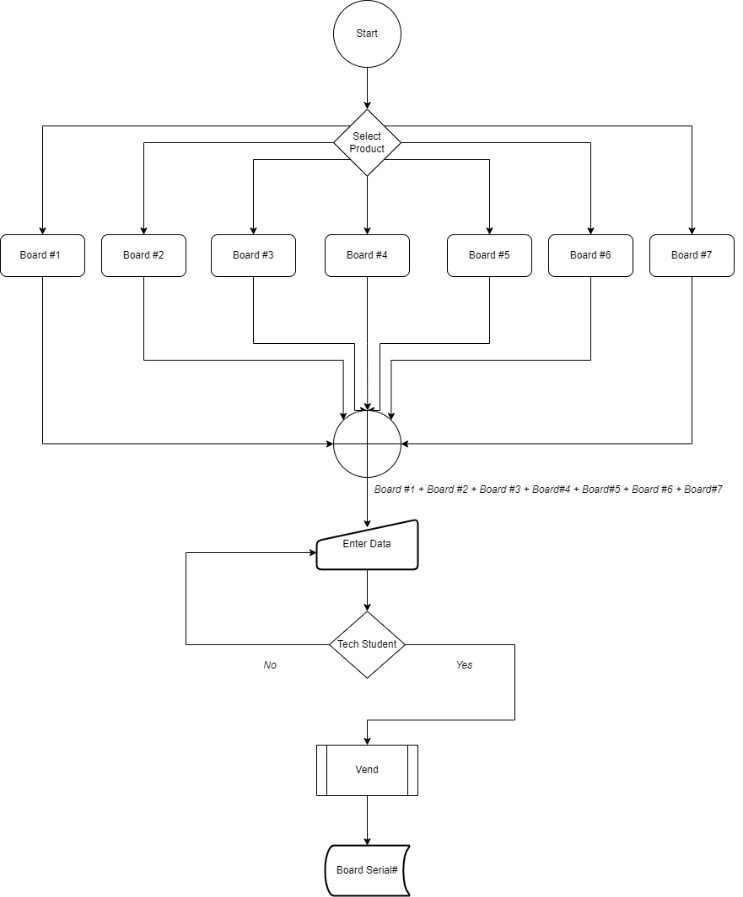
# Design And Implementation

The following design for a class kit vending machine is suggested in order to address the drawbacks of the current approach and to offer a solution that is both affordable and user-friendly. The project's primary components—the power supply, the card reader, the motor driver, and the LCD—are shown in Fig. 1 as being composed of five elements.



*Figure 1: Overall Design of Machine*

In order to understand the overall design the process must be acknowledged first. The process would be very simple. A student would walk into the office of Electrical and Computer Engineering and using the Eagle Card he/she would tap on the reader and after verifying the information the student then will choose the required board from the given set of choices on LCD and after doing so one of the drawers would pop open and with the help of LEDs the student would grab the needed board and close the drawer as shown in figure 2.



*Figure 2: Design Flow of Machine*

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*a**b* 

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* There is no period after the “et” in the Latin abbreviation “et al.”.
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4. K. Elissa, “Title of paper if known,” unpublished.
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