**TITLE**: **DESIGN AND VERIFICATION OF VENDING MACHINE USING MEALY MODEL.**

**ABSTRACT:**

This project involves designing and verifying a vending machine using a Mealy machine model with two products priced at 15 and 20 rupees. The vending machine dispenses the selected product if the inserted money is sufficient (output 1), otherwise, it returns 0. The machine also returns change and accepts 5 and 10 rupee coins. The Mealy machine ensures that the output is dependent on both the current state and input, making it suitable for modeling vending machine behavior. This project aims to create a reliable and efficient vending machine that accurately calculates the cost, dispenses products, and returns change, all while considering the allowed coin denominations.

**EXPECTED OUTCOMES:**

* **Design of an operational Vending Machine:** 
  + Successfully implement a functioning vending machine utilizing a Mealy machine model, allowing users to select from three products and dispense them upon inserting the correct amount of money.
* **Mealy Machine Verification:**
  + Thoroughly verify the Mealy machine model's functionality to guarantee its accurate operation, minimizing errors and ensuring that design is working as intended with minimum required states.
* **Programming Skills & practical knowledge:**
  + Improving programming skills in system Verilog and also the application of theoretical knowledge into practice will give more insights into the subject.
* **Simulation results:**
  + Include the results of simulation such as coverage, no of testcases passed or failed.