

BlackJack Card Game
ECE153B Final Project
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Overview: Our project will replicate the functionality of a popular card game that is played between dealer and players at the table. For this project, there will be one player that is playing against the dealer in hopes of obtaining card values that are greater than the dealer's but less than or equal to 21. This game will consist of a 16x2 LCD display, a 4x4 keypad connected, multi-colored LED lights connected to the GPIO pins. The keypad will serve the functionality of shuffling cards, obtaining a new card, raising the bets, or starting a new game and the LED lights will flash green (play sound through speaker) if the player wins with 21 or red if the dealer wins any game. The display will show the player's game balance as well as the suits and numbers of each card being dealt to each player (dealer and user).

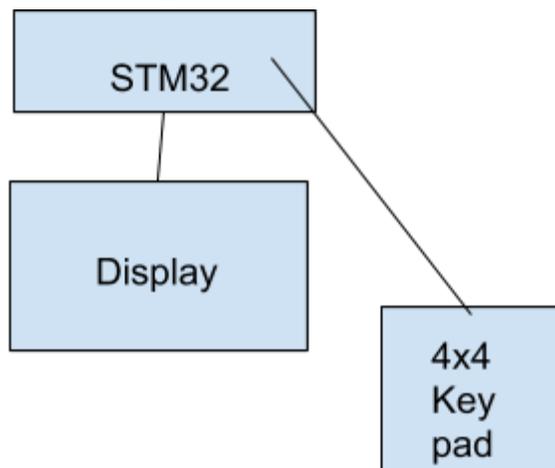
Peripherals:

- 16x2 LCD Display
- 4x4 Keypad
- Multi-Colored LEDs
- speaker

Serial Interface Protocols:

- SPI
- UART

Block Diagram:



Software Structure:

- The game logic will be programmed and uploaded onto the flash memory of the STM32 board. The basic concept behind the game logic is to shuffle the “deck” of cards before they are dealt to each player. This program will also maintain the player’s balance or “bank” as he/she wins or loses to the dealer.
- A library will be used to interact with the LCD display and show the cards that are being dealt to each player.
- Interrupts will be used every time the player either wins or loses to the dealer based on comparison of values between both players. These interrupts will then communicate with the LED display.

Responsibility List:

- Juan will be working on developing half of the game logic, interfacing the display with the STM32 board and the interrupts that will be called once the game has been finalized to see what LED gets turned on.
- Armaan will be working on developing the other half of the game logic, interfacing the keypad with the STM32.

Goals:

- Replicate Blackjack as accurately as to how it is displayed in casinos/online
- Keep track of the user’s balance successfully
- Use LED display to highlight different results from user’s play; different colors/lights for winning/losing/getting blackjack
- Utilize keypad for different actions in the game (Hit/Stand/Double/Reset)

Site Link:

<https://sites.google.com/view/153b-blackjack/home?authuser=2>