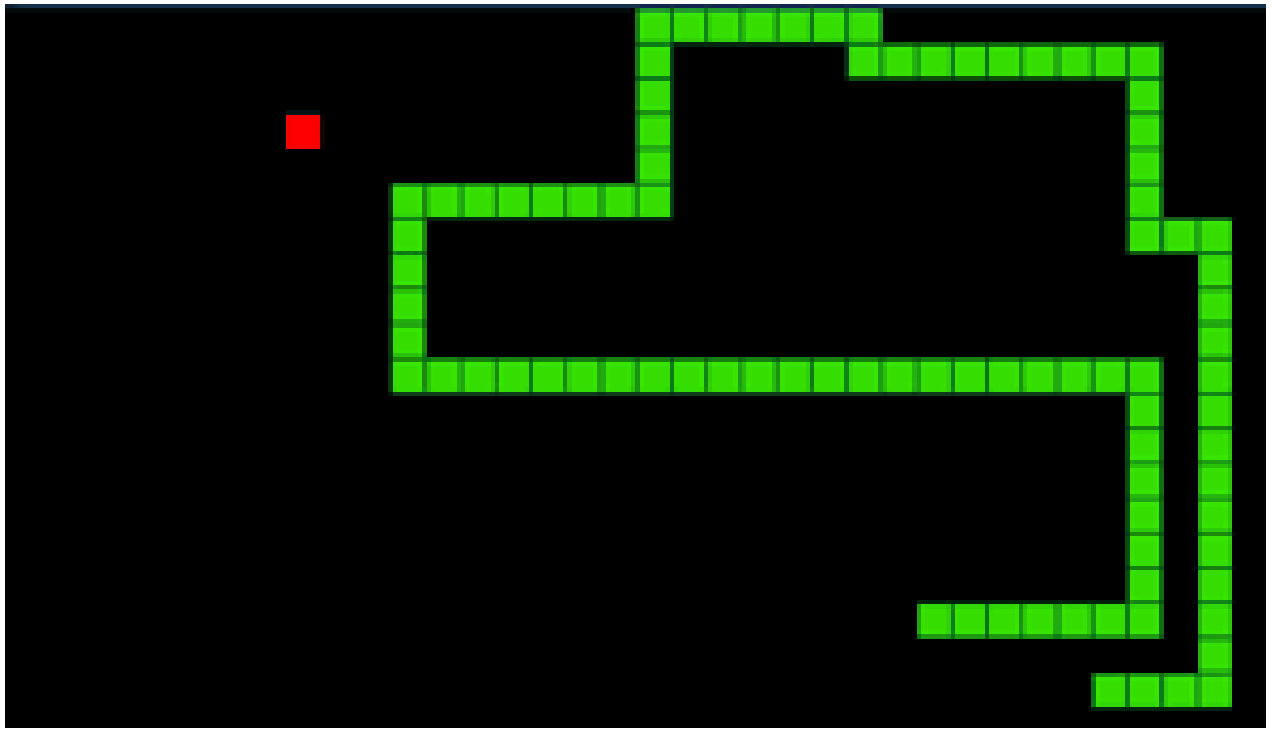
SNAKE GAME

LPC1768 ARM CORTEX MICROCONTROLLER

TEAM11



SNAKE GAME - OBJECTIVES

The main objective of creating a Snake game on the LPC1768 ARM Cortex platform is to gain experience in embedded systems programming and game development, while also creating a fun and engaging game that can be enjoyed by others.

WHAT IT DOES?

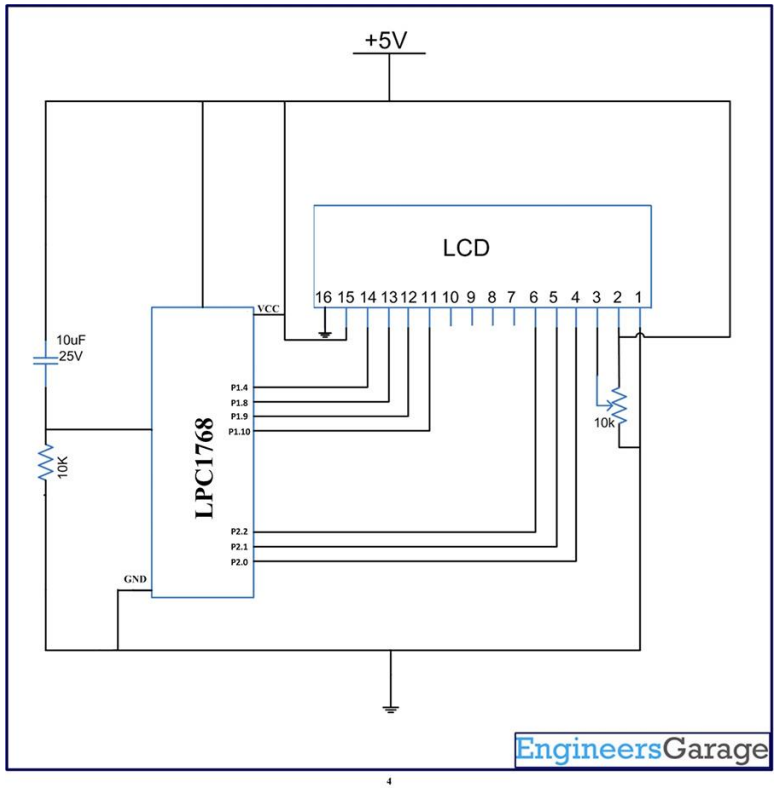
The LPC1768 ARM Cortex Snake game is a classic arcade-style game where the player controls a snake that moves around a 2D game board, eating food items and growing in length. The objective of the game is to eat as much food as possible without colliding with the walls or the snake's own body.

- The game is implemented on the LPC1768 ARM Cortex microcontroller platform, which provides a range of features and peripherals to support game development. The game board is displayed on a graphical LCD screen, and the player controls the snake's movement using buttons.

LCD

The ARM Cortex-M3 LPC1768 microcontroller can interface with a 16x2 LCD display using a 4-bit parallel interface. The display has 16 columns and 2 rows. To control the display, the microcontroller sends commands and data through 4 data lines and controls the display using the control lines. Interfacing involves setting up GPIO pins and sending commands to set the cursor position and display characters.

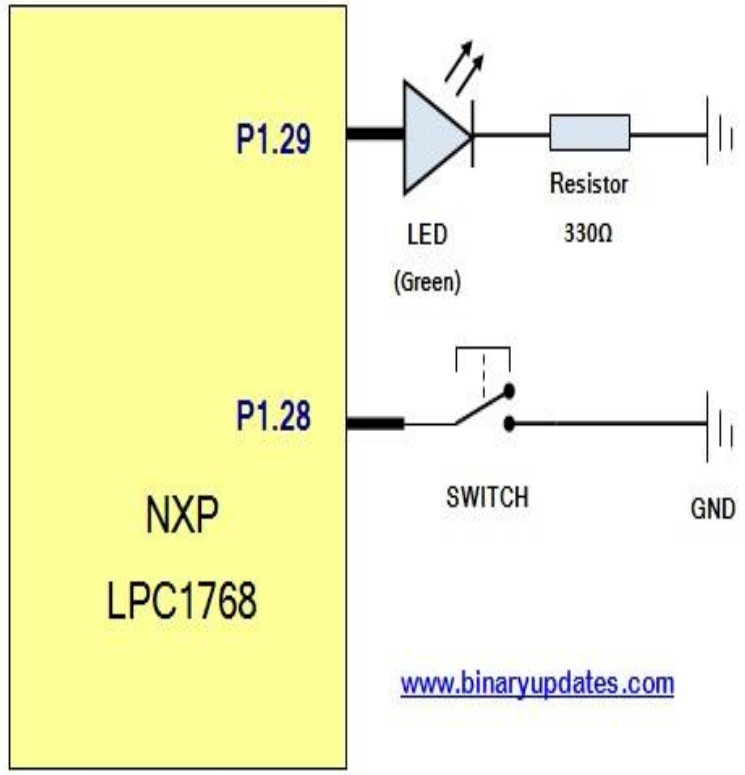
The LCD module used in this code is a standard 16x2 character LCD, which is controlled using a 6-pin interface. The interface consists of 3 control pins (RS, EN, and RW) and 4 data pins (D4-D7). The microcontroller communicates with the LCD module using a 4-bit data transfer protocol, where the upper 4 bits of each 8-bit command or data byte are transferred using pins D4-D7.



BUTTONS

The LPC1768 microcontroller can interface with buttons using GPIO pins. Debouncing the input signal is recommended to avoid false readings. When a button press is detected, the microcontroller can perform actions such as triggering an interrupt or activating a function. Interfacing involves configuring GPIO pins and programming actions based on button presses.

The push buttons used in this code are connected to four input pins (P2.10 - P2.13) on the LPC1768 microcontroller. Each button is connected to a different pin, and is configured to operate in a pull-up configuration. This means that when a button is not pressed, the corresponding input pin is held high by a pull-up resistor. When a button is pressed, the input pin is pulled low, indicating that the button has been pressed.



CODE SNAKE GAME

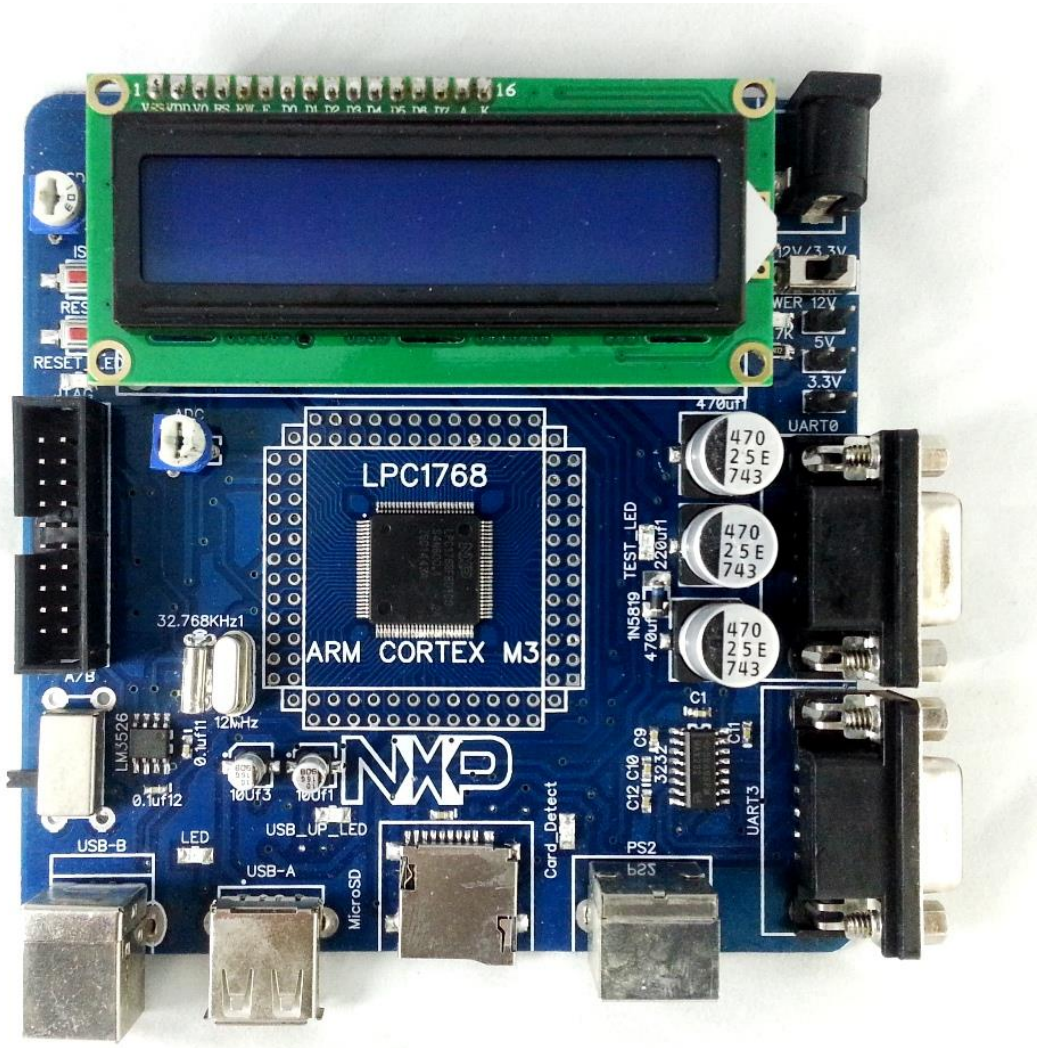


FIG- LPC1768 MICROCONTROLLER BOARD

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