

PROJECT EMBEDDED SNAKE GAME



Team [BeagleBone]

Members:

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System Explanation:

The system employs a BeagleBone embedded system, allowing users to engage in a snake game controlled via a joystick. The display utilizes four 8x8 matrices, providing a visual interface for gameplay. A 3-button interface governs specific game functionalities: the green button initiates gameplay, the red button triggers the end of a round, and the blue button allows users to pick levels (From levels 1-6), with each increase in level increasing the snake's speed for the game.

Additionally, an Tri-colour LED plays a crucial role in signaling game events. If the snake successfully consumes the fruit, the LED illuminates in green, signifying the snake successfully eating fruit. Conversely, if the LED turns red, it signifies the end of one round, indicating that the snake has eaten itself (head touches any part of the snake body). Other LED colors have been implemented in the game as well, each of which have been described in Figure 1. This comprehensive setup creates an interactive and engaging gaming experience, combining hardware elements seamlessly for user enjoyment and interaction.

During our development process, we encountered a significant challenge that impacted the functionality of our system. The challenge being, when our intended LCD screen failed to operate as expected. Despite troubleshooting efforts, the root cause remained elusive, the utilization of four 8x8 LED matrices, offering an alternative visual interface for the game.

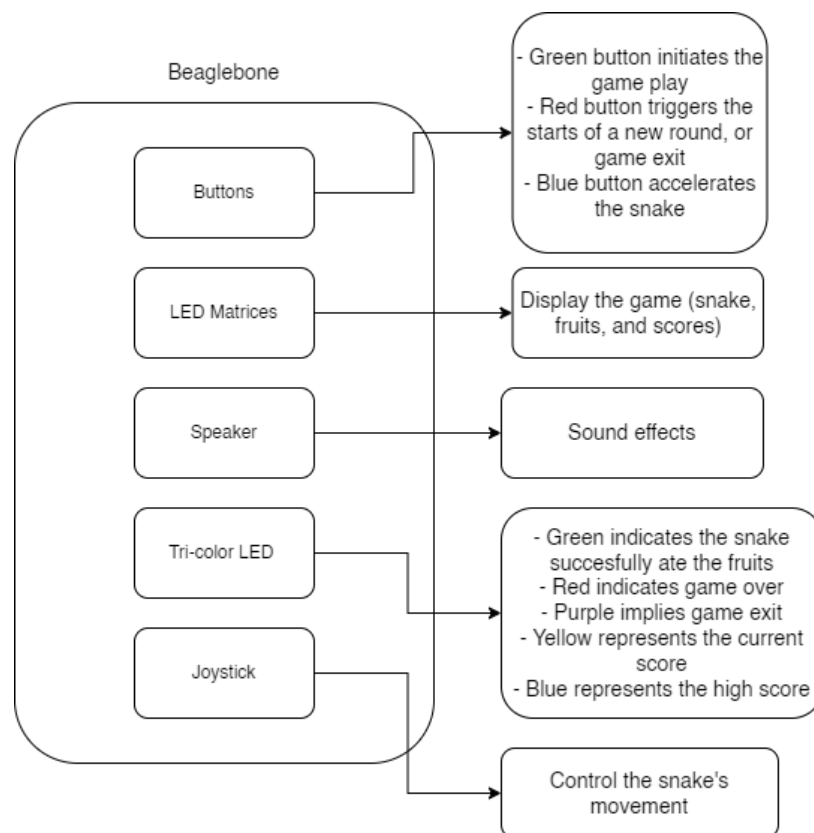


Figure 1

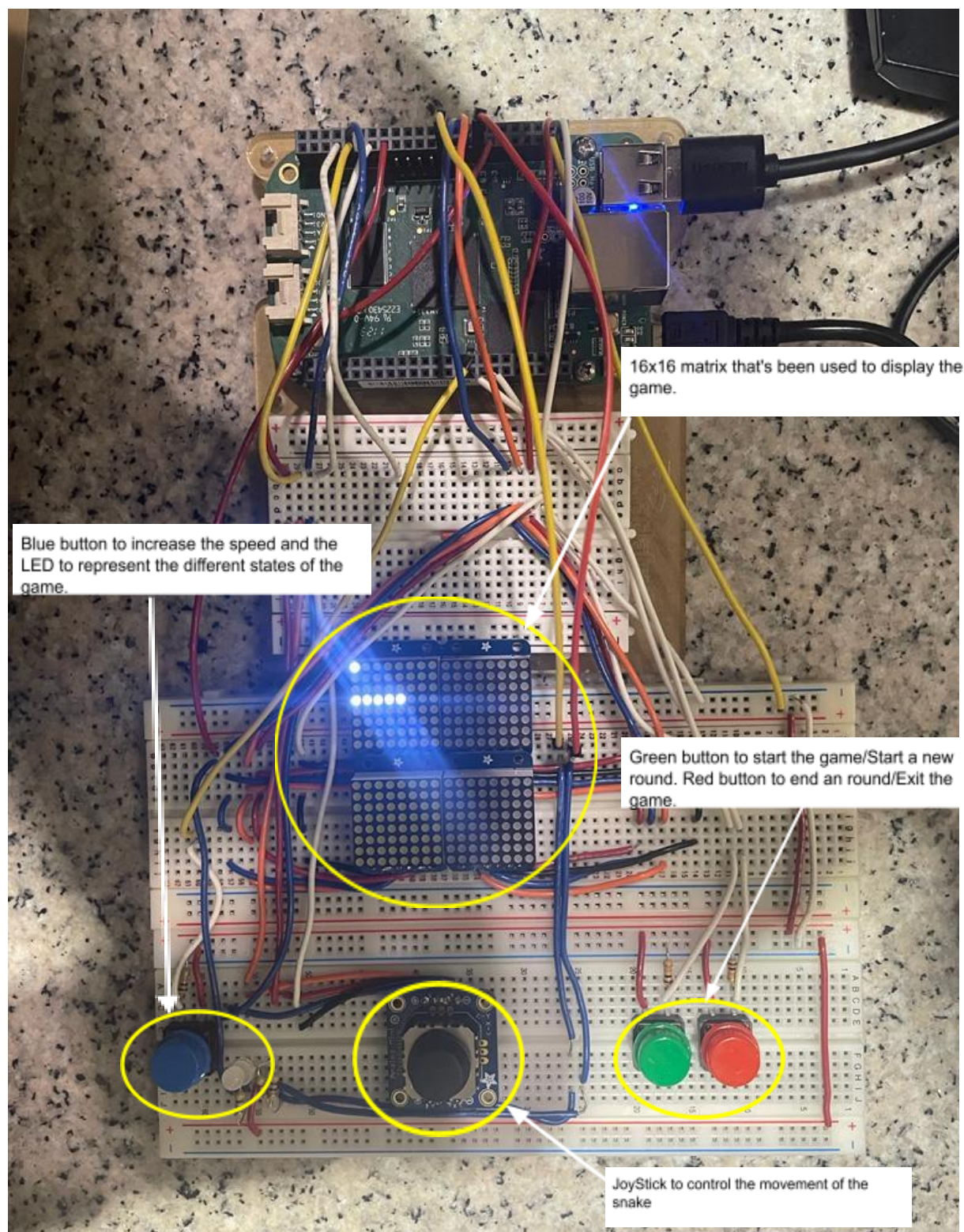


Figure 2

Feature table:

Description	Host/Target	Comp	Code	Author(s)	Notes
JoyStick	T	5	C	Savinu/Yashdeep /Kai/Valentina	Based on AS2 sample code. User is able to control the snake's movement across the matrices.
Speaker	T	5	C	Savinu/Yashdeep /Kai/Valentina	Works fully, plays specific sounds for game end and when snake consumes fruit.
Scrolling	T	5	C	Savinu/Yashdeep /Kai/Valentina	Works fully, the snake is able to scroll across the matrix/matrices.
Combined Matrices (16x16)	T	5	C	Savinu/Yashdeep /Kai/Valentina	Works fully, the snake is able to move from one matrix to another.
Buttons	T	5	C	Savinu/Yashdeep /Kai/Valentina	Work fully, each button has its own functionality.
Tri-color LED	T	5	C	Savinu/Yashdeep /Kai/Valentina	Works fully, specific LED colors are used represent different actions in the game