SNAKE GAME

In the process of creating of this project , the stages needing to be overcomed:

- Proceed of the snake as a collection
- Rotation of the snake
- Gathering food
- Finish of the game
- Precision of buttons

Proceed of The Snake As a Collection

Rotation of The Snake

While the game was being done, the first and the most problem was how the snake moves directly. There was different solutions about this; for example, the program writes any string on any location and erases end of the string. This solution can provide to move in only single direction. So that the snake can move in every direction flexibly, I used struct. In this struct , there are x and y coordinates for every elements of the snake, and since maximum length will be 80 units, a array was created with 80 units in struct coordination. Finally, the algorithm would have been in the following way:

The head of the snake moves along determined direciton by user

Second element follows head

Third element follows second element

...

Therefore, we can handle both proceed and rotation problems.

However, doing this process , I encountered a problem. While the elements of snake array are replacing each other, every elements should be know the place of next element, but after updating coordinates , previous coordinates get lost, so elements do not proceed simultaneously. In this respect, I determined initial koordinates. Every elements replace next adress , but before the head moves. After replacements, addresses are updating by for loop all at once.

Gathering Food

For food , program determines a place randomly. In each cycle of infinite loop, writing character for food continues. When the snake take food, program identifies new coordinates for food randomly again.

Finish of The Game

When the snake crashes walls, or itself, the game should have been terminated. First situation could be provided by determining limits of the LCD screen. For the second situation, next address of the head was comprared to addresses of other elements of the array. Thus , whether the snake crashed itself or not was indicated.

Precision of Buttons

For precision of the buttons, different options existed:

- millis() Function
- Interrupt
- For loop

In this project, since millis() function had some problem in the program, for loop was prefered. In each period, the data is taken from buttons, and the program waits 1 millisecond then loop continues until the limit determined before. Multitasking is provided.