

# Gianina-Mihaela CARP (66907) - SnakeIT

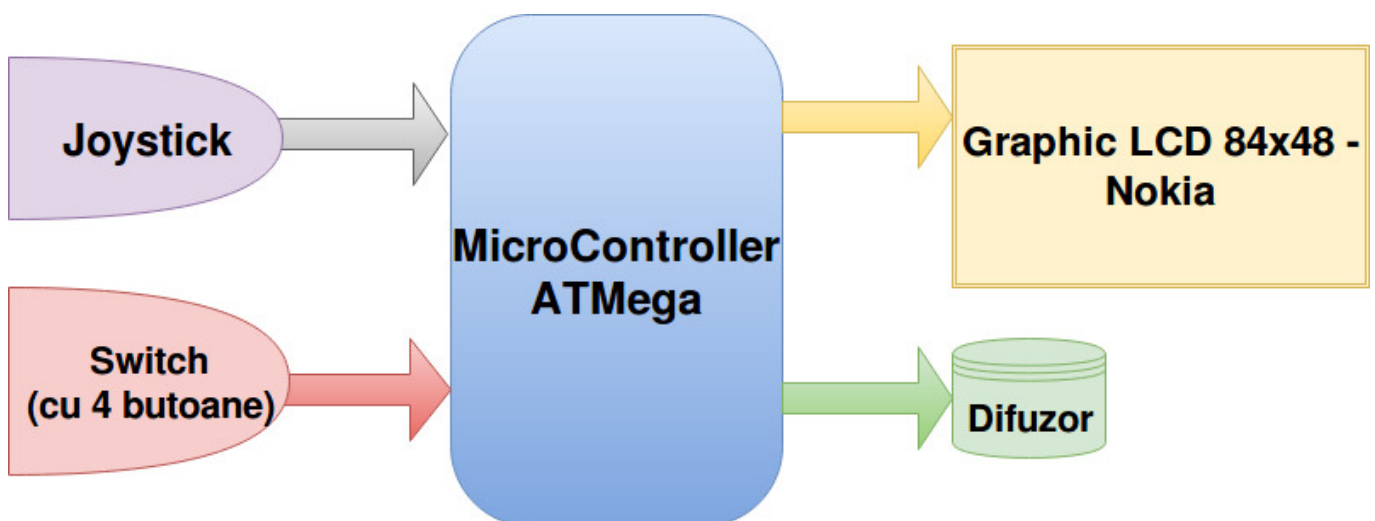
Adresa de contact: gianina.m.carp@gmail.com

## Introducere

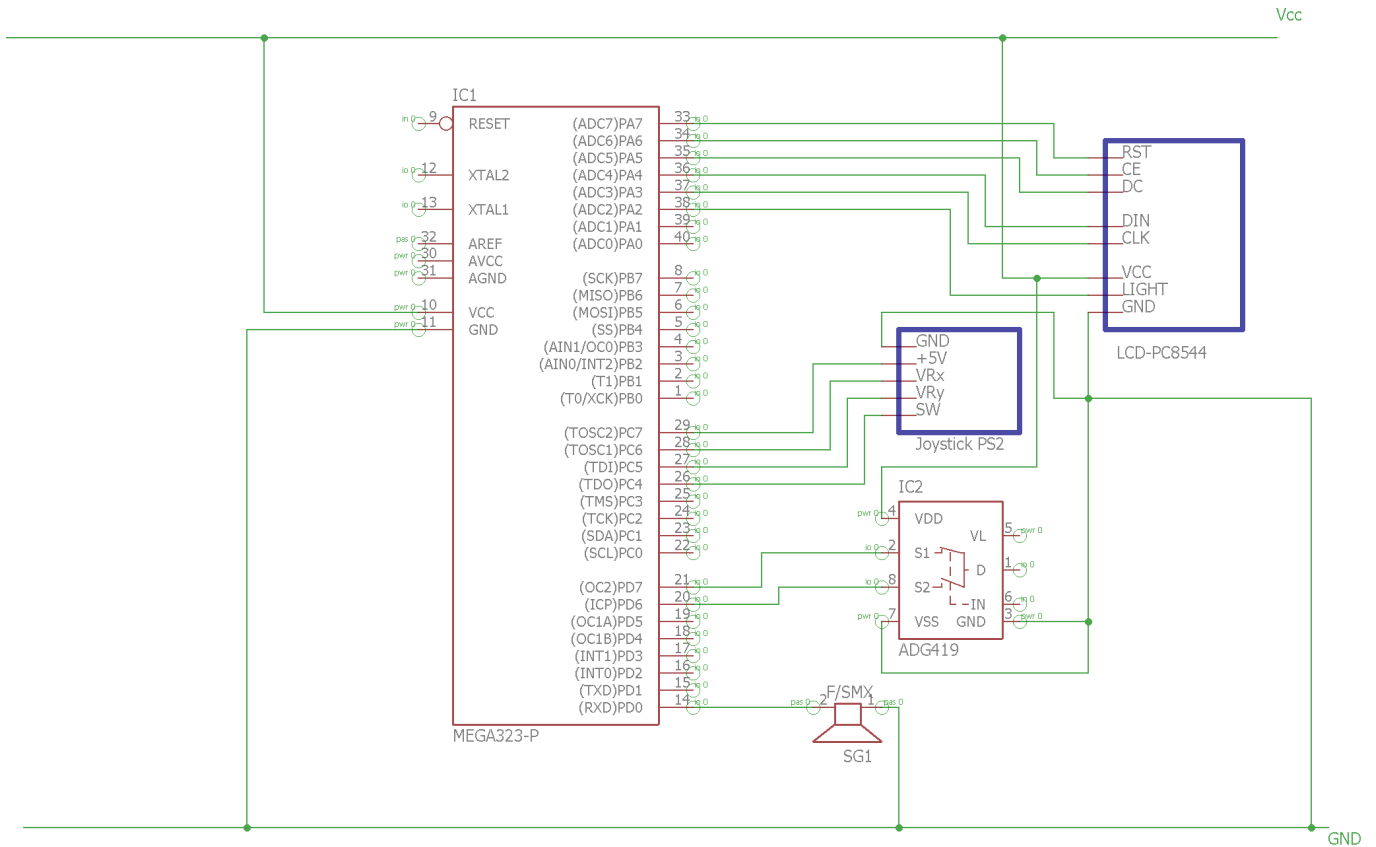
## SnakeIT

- jocul snake pe Graphic LCD 84x48 - Nokia
- input folosind un joystick (miscarile)
- jocul prezinta mai multe nivele de dificultate de pot fi modificate dintr-un comutator
- output → difuzor ce va reda diferite sunete in functie de activitatile din joc (ex: game over, la atingerea hranii)

## Descriere generală



## Hardware Design



**Lista de componente(pe langa cele de baza):**

- Graphic LCD 84x48 - Nokia
- Joystick
- Difuzor
- Comutatoare(x2 si x4)

**Pini utilizati:**

1. LCD Nokia5110:PORTB → PB0 - PB4
  1. > PB → Backlight
  2. > Vcc(+) si GND (-)
2. Buzzer: PORTD
  1. > PD0
  2. > GND (-)
3. Joystick: PORTA → PA5 → coordonata Y
  1. > PA6 → coordonata X
  2. > PA4 → buton joystick → utilizat pentru pauza
  3. > Vcc(+) si GND(-)

#### 4. Comutatoare: PORTC → GND(-)

```
X2: (1) -> PC1 -> Pauza
     (2) -> PC0 -> Backlight LCD

X4:
     (1) -> PC6 -> Level EASY
     (2) -> PC5 -> Level MEDIUM
     (3) -> PC4 -> Level HARD
     (4) -> PC3 -> Redimensionare margini
```

## Software Design

Am folosit biblioteca nokia5110 pentru interfatarea cu ecranul LCD.

## Mediul de dezvoltare folosit:

Programmer's Notepad

## Implementare SnakeIT

Pentru a retine snake-ul efectiv si bucati de hrana am folosit structura coord\_t ce are doua componente de tip int, x si y.

```
struct coord_t {
```

```
int x;
int y;
```

```
}coord_t;
```

## Functii implementate

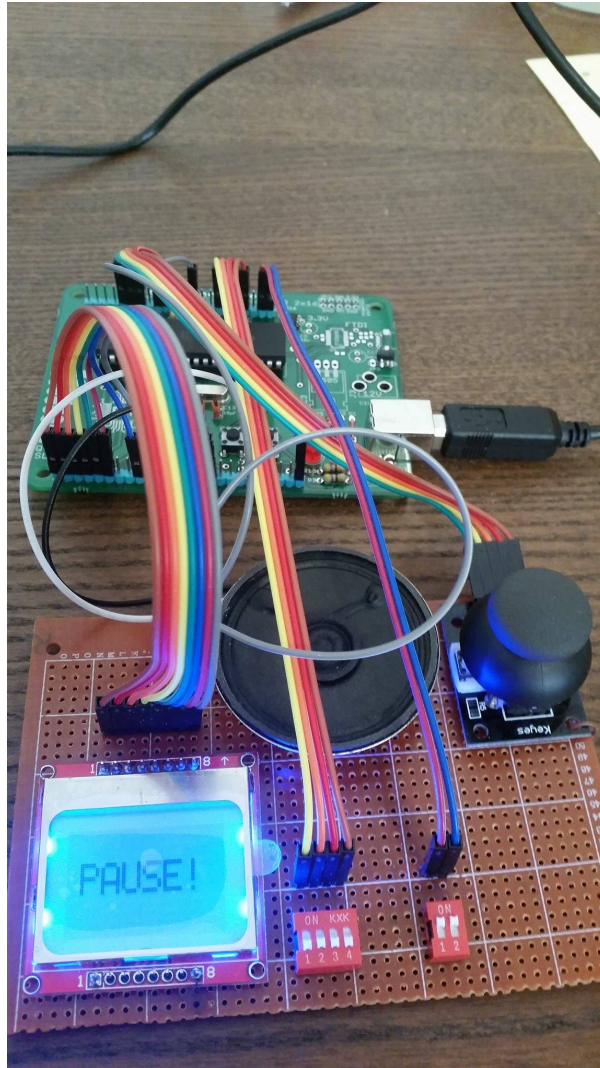
1. void ADC\_init()
2. int ADC\_get()
3. int check\_food\_pos() ⇒ verificare intersectie snake & food
4. void generate\_food() ⇒ generare food
5. void initSnake() ⇒ initializare snake

6. int checkSnake() ⇒ verifica daca sarpele s-a lovit de margini sau de el insusi
7. void clearSnake() ⇒ sterge snake
8. void showSnake() ⇒ afisare snake pe LCD
9. void moveSnake(int) ⇒ miscare snake
10. int checkDirection(int, int) ⇒ verificare corectitudine directie primita
11. int getDir(int x, int y, int snake\_dir) ⇒ trecerea datelor primite de la joystick din analog in digital si returnarea directiei corespunzatoare
12. void initIO()⇒ initializare porturi ca intrare/iesire
13. void drawBorder() ⇒ desenare bordura
14. void checkBacklight() ⇒ verificare si aprindere backlight LCD
15. void buzzer\_morse(int tip\_morse) ⇒ generare sunete de la buzzer
16. void makeSound(int tip\_morse) ⇒ generarea unui anumit tip de sunet
17. int checkDifficulty() ⇒ verificare dificultate aleasa
18. int checkBorder() ⇒ verificare tip de margine aleasa
19. void snake\_main()

## Rezultate Obținute

Am realizat cu succes atat partea hardware, cat jocul in sine.

## Concluzii

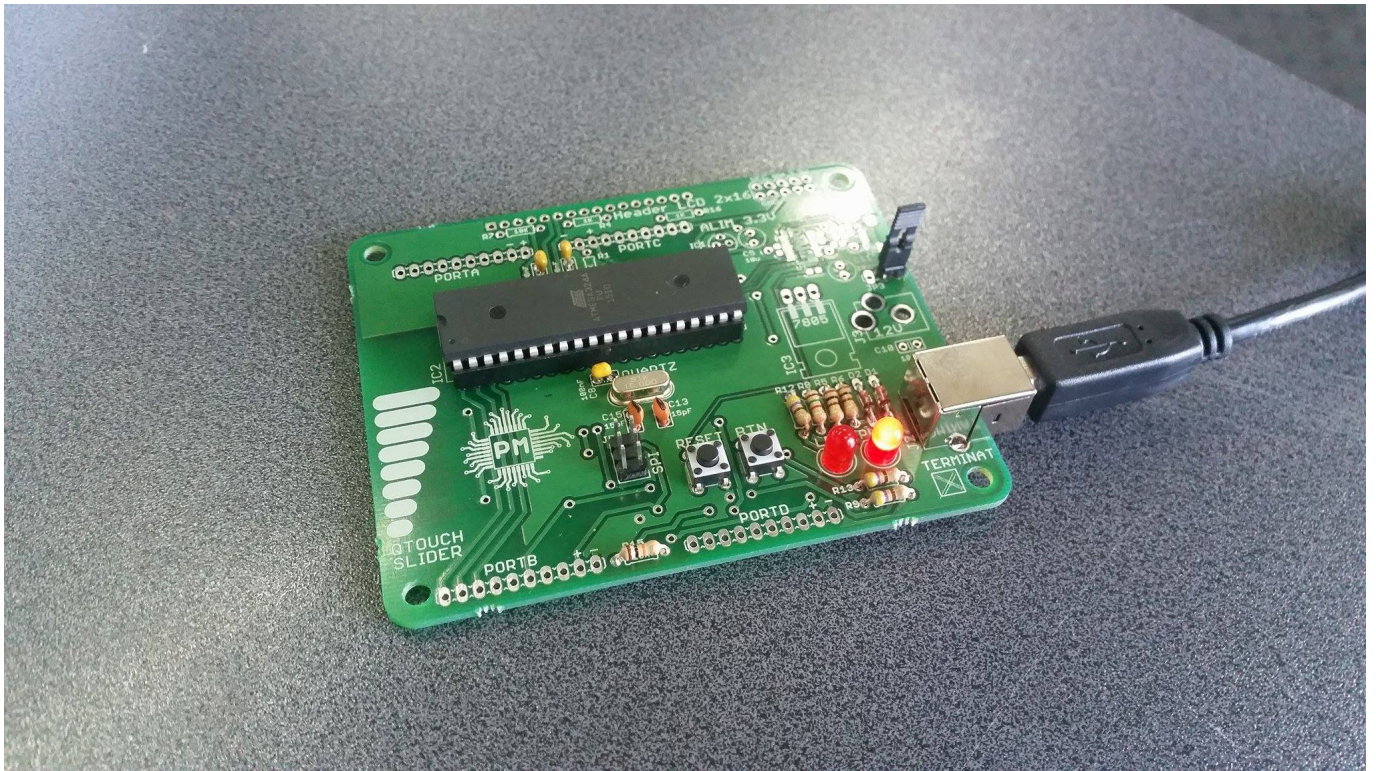


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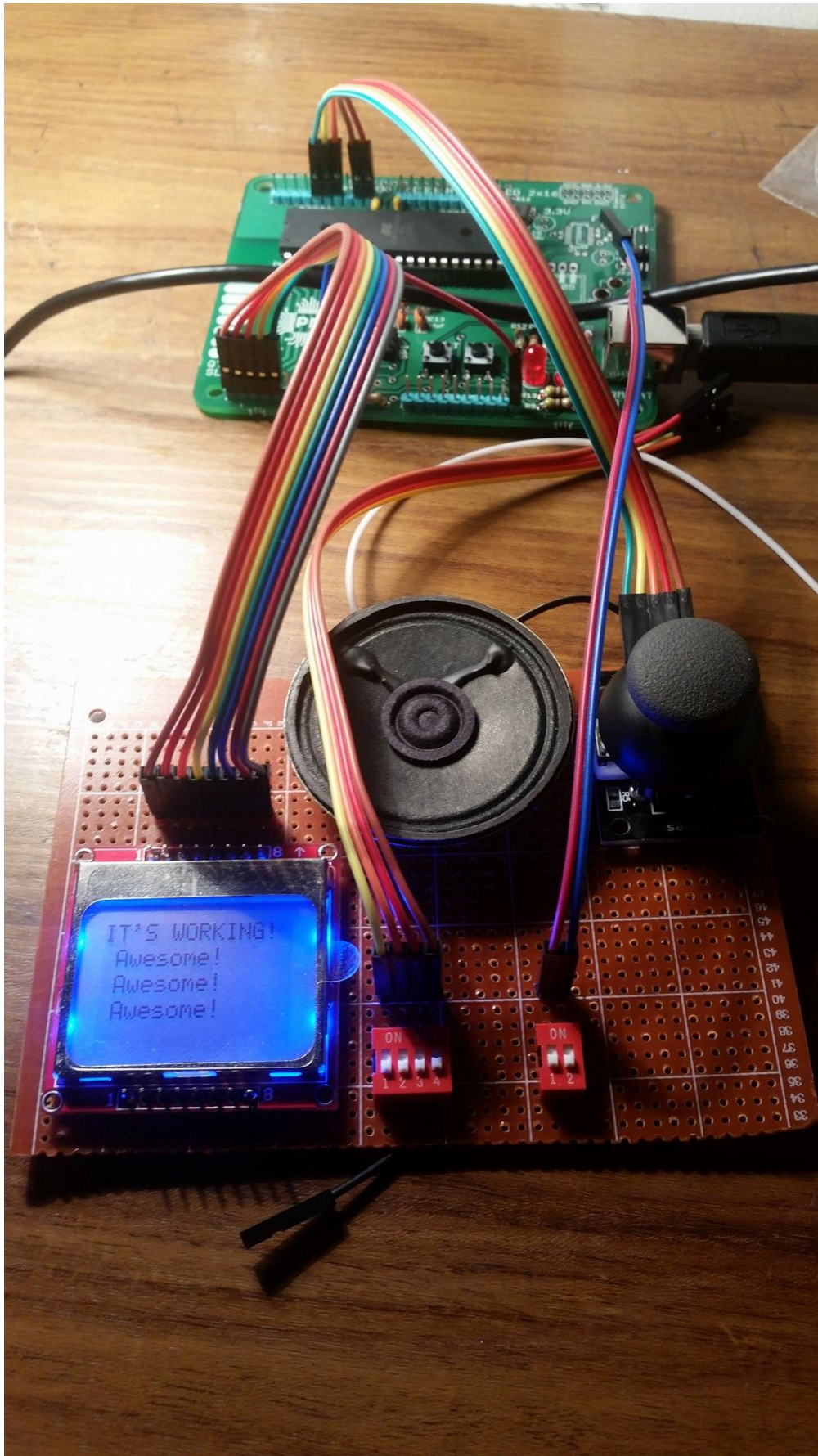
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## Jurnal

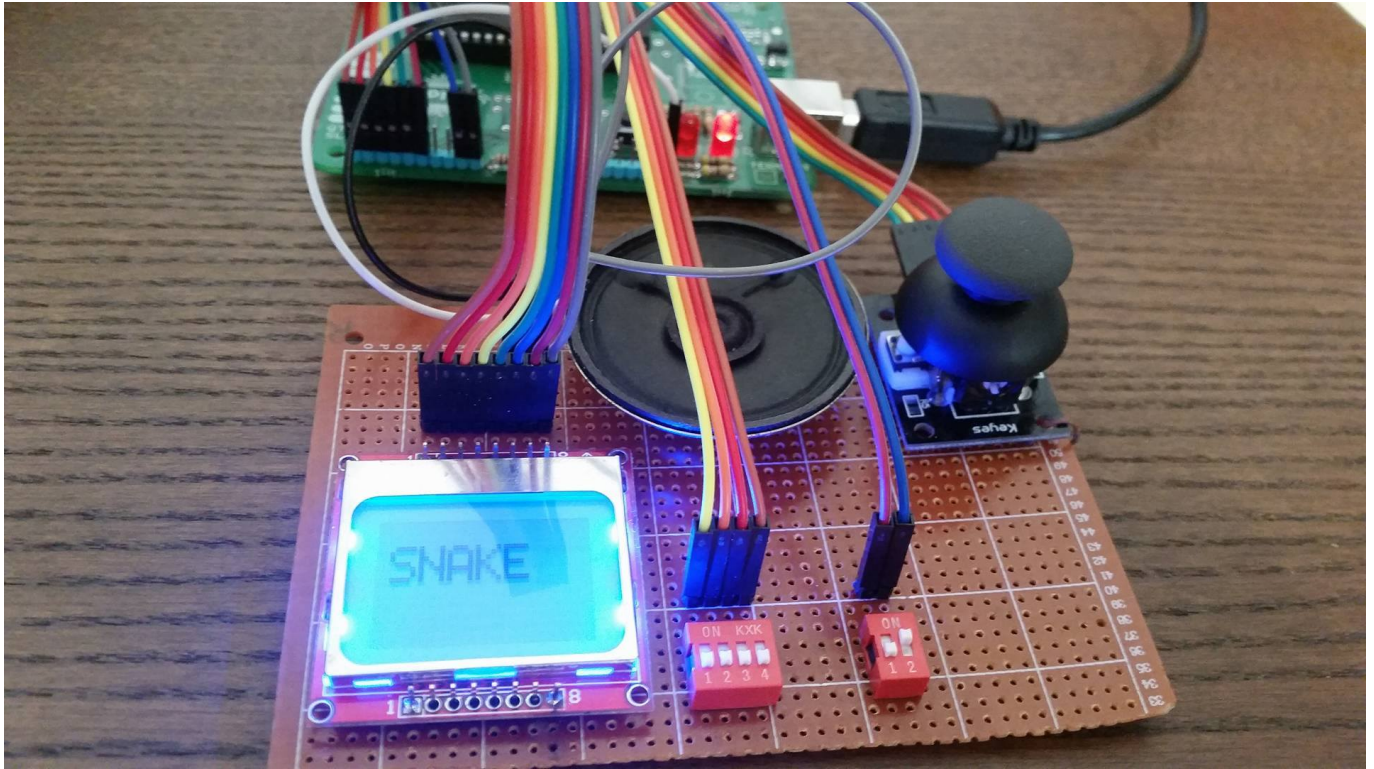
Placa de baza 



Testare



Final



## Bibliografie/Resurse

### Resuse Software

#### Librarie LCD Nokia5110

- Documentația în format [PDF](#)

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