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Introduction

This is the classic version of the most popular mobile and computer game named “SNAKE”. The main objective of this game is to feed an increasing length of a snake with food particles which are found at random positions, picking up bonus mongooses that occur at regular intervals.

Description

This is a game which is quite easy to play. The game is a classic representation of the snake game which appears as an inbuilt game feature in most of the leading mobile handsets like Nokia.

The “snake game” is one of the simplest game concepts ever, and just like Tetris it’s very addictive. There are a lot of variations of this game written in Flash, a relatively easy game to code.

Your goal is to move the snake and eat as many “food” blocks as possible. There is only one food block at any given time. When the food is eaten, the snake grows in length. If you hit the snake itself the game is over.

Depending on the mode selection, the game speed itself and hence gives the user choices as he is free to select the difficulty level.

Software Used

We have used Arduino software to design and implement our system.
Arduino ide includes software tools that allows us to build the project virtually. Also, it allows us to implement the code needed for all the functions.

Components

. Arduino Uno is a microcontroller board based on the ATmega328P (datasheet). It has 14 digital input/output pins (of which 6 can be used as PWM outputs), 6 analog inputs, a 16 MHz ceramic resonator (CSTCE16M0V53-R0), a USB connection, a power jack, an ICSP header.

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. The Analog Joystick is similar to two potentiometers connected together, one for the vertical movement (Y-axis) and other for the horizontal movement (X-axis).

Joystick Connection

Gnd → Gnd

Vcc → 5v

Vrx → Pin A2

Vry → Pin A3

Sw → Gnd

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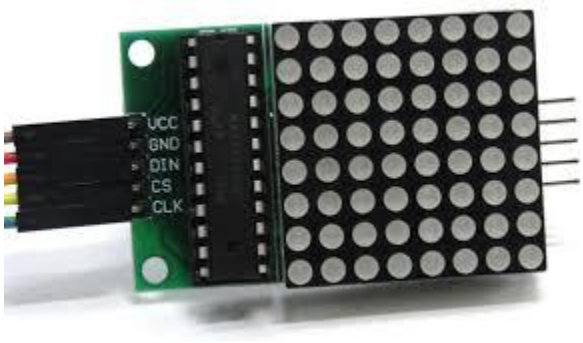

. A 8×8 matrix has 8 columns and 8 rows, so it contains a total of 64 LEDs. The MAX7219 chip makes it easier to control the dot matrix, by just using 3 digital pins of the Arduino board.

8×8 matrix Connection

Vcc → 5v

Gnd → Gnd

Din → Pin 12

Cs →Pin 11

Clk →Pin 10

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A potentiometer is a simple mechanical device that provides a varying amount of resistance when its shaft is turned. By passing voltage through a potentiometer and into an analog input on your board, it is possible to measure the amount of resistance produced by a potentiometer (or pot for short) as an analog value.

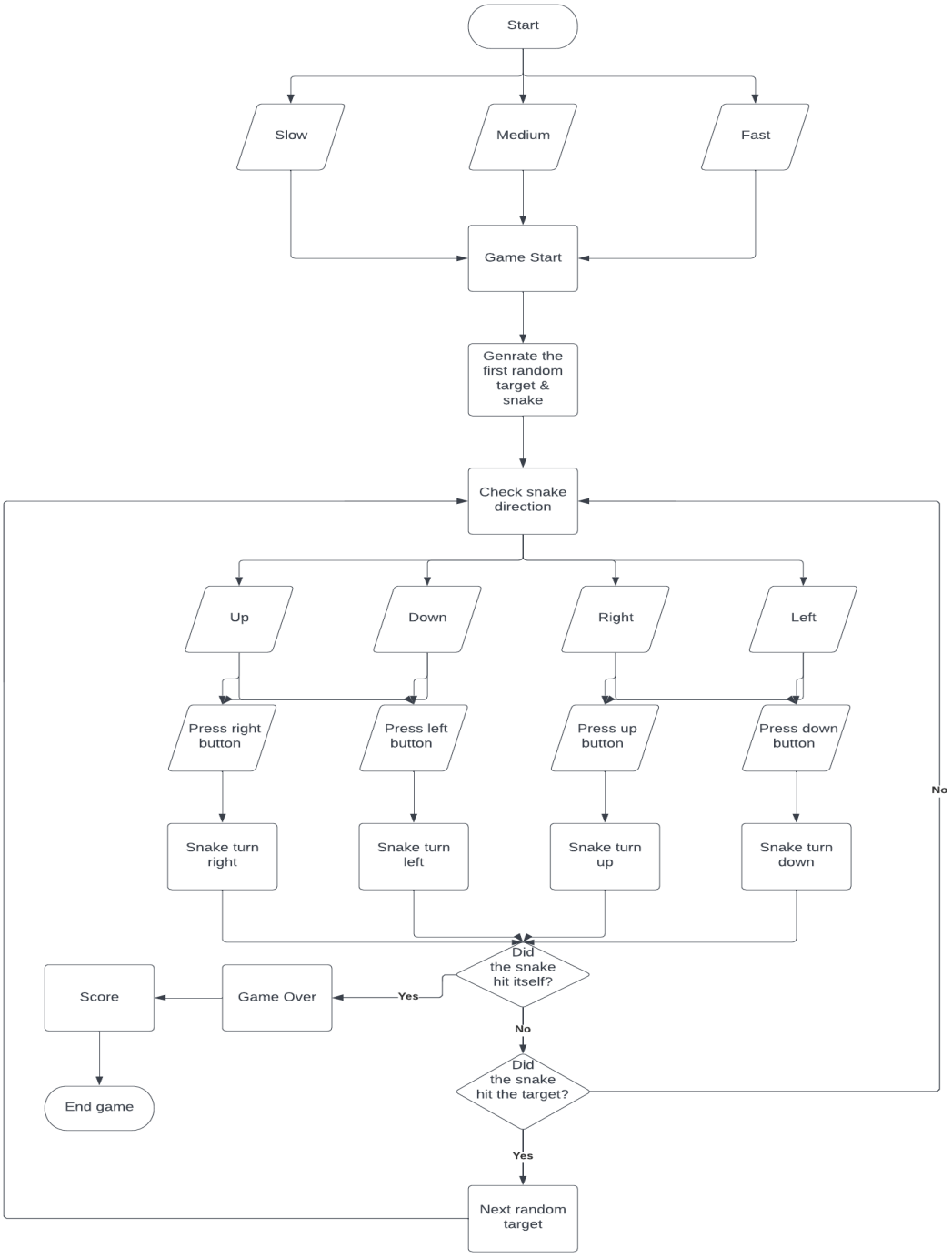
potentiometer Connection

Right Pin → Gnd

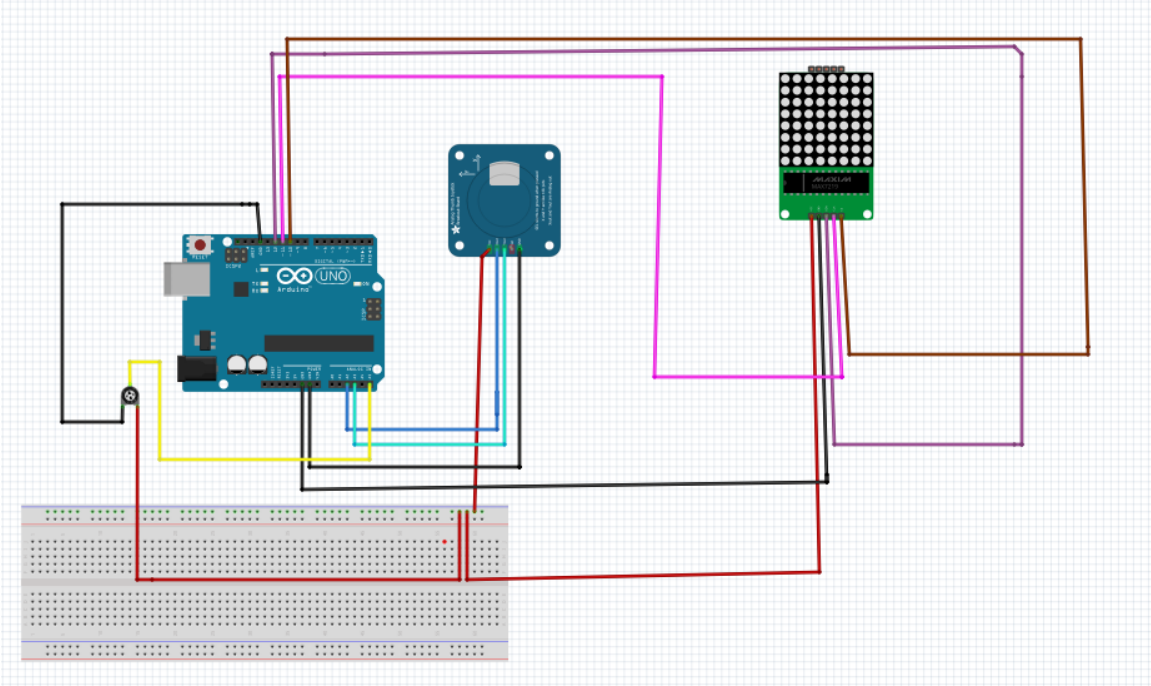
Signal Pin → Pin A5

Left Pin → 5v

Flow Chart


Start
Slow
Medium
Fast
Game Start
Genrate the first random target & snake
Check snake direction
Up
Down
Right
Left
Press right button
Press left button
Press up button
Press down button
Snake turn right
Snake turn left
Snake turn up
Snake turn down
Did the snake hit itself?
Yes
Game Over
Score
End game
No
Did the snake hit the target?
Yes
Next random target
No

The System



Results