GAME CONTROLS THROUGH GESTURE

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PROJECT PROFILE

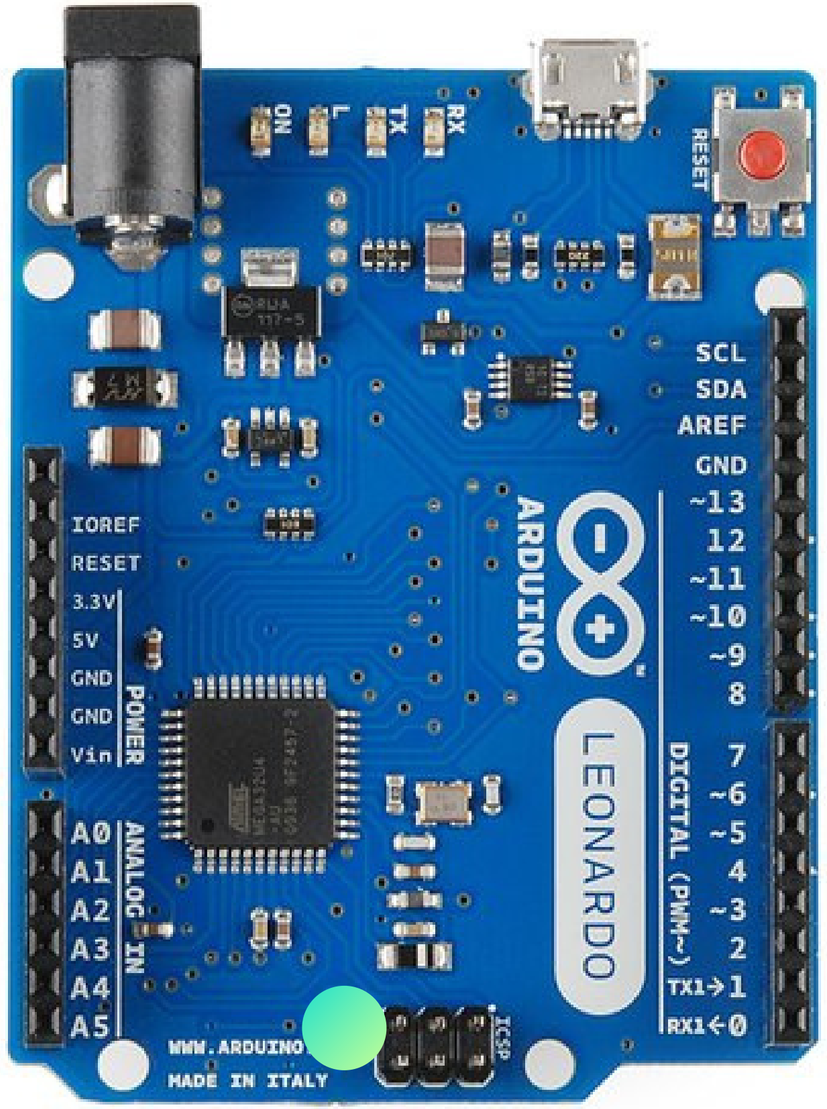
- Gesture controls is the method to control and interact with a computer without direct physical contact.
- It could be implemented in the gaming systems through gaming gloves.
- For example Kinect is a xbox gaming console gesture control based game controller which uses depth camera and motion sensor.

TOOLS AND TECHNOLOGY USED

1. Arduino Leonardo
2. FLEX Sensor
3. ADEXL 335
4. Jumper Wire
5. Breadboard

ARDUINO LEONARDO

- Microcontroller board based on the ATmega32u4
- It has 20 digital input/output pins.
- Micro USB connection
- Power Jack, an ICSP header, and a Reset Button

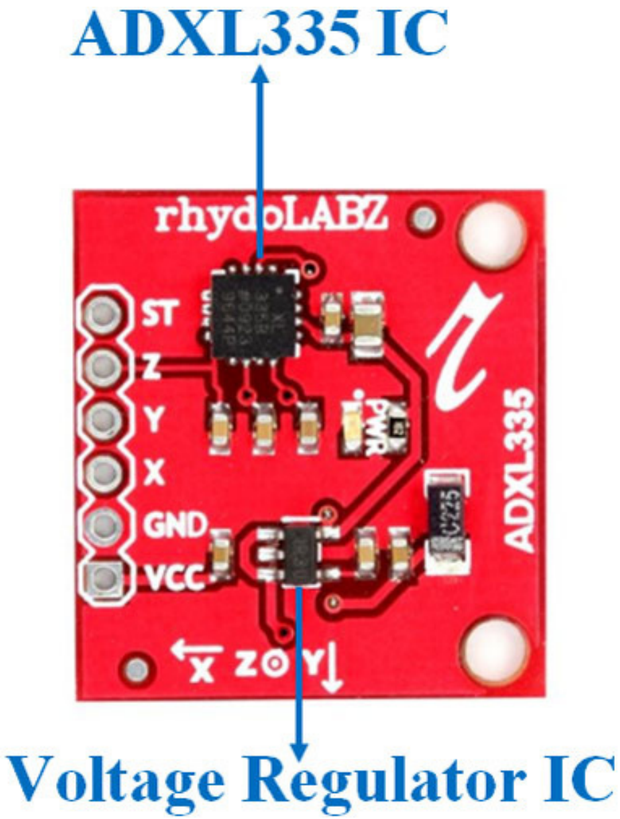


FLEX SENSOR

- It use to measures the amount of deflection or bending.
- Operating voltage of FLEX SENSOR: 0-5V
- Power rating : 0.5Watt (continuous), 1 Watt (peak)
- Divided based on resistance. LOW resistance, MEDIUM resistance and HIGH resistance types.

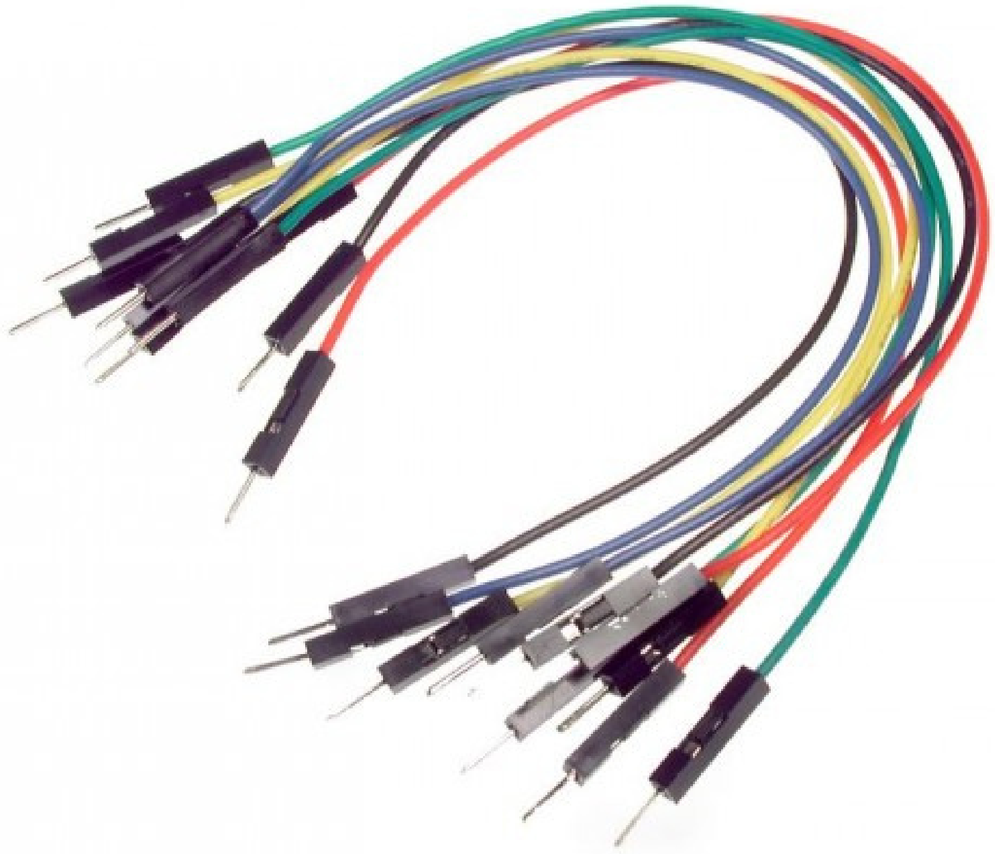
ADEXL 335

- 3-axis sensing
- Small, low-profile package
- 4 mm × 4 mm × 1.45 mm LFCSP
- Low power - 350 µA (typical)
- Single-supply operation
  1.8 V to 3.6 V



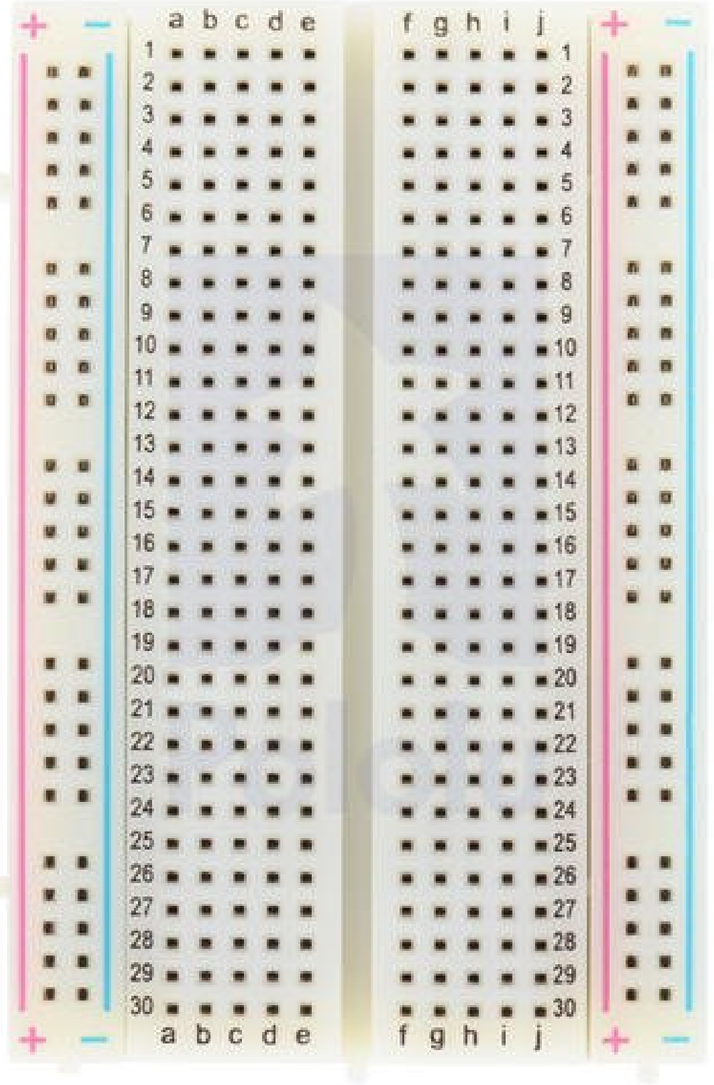
JUMPER WIRE

- Jumper wires are simply wires that have connector pins at each end, allowing them to be used to connect two points to each other without soldering.
- Jumper wires are typically used with breadboards and other prototyping tools in order to make it easy to change a circuit as needed.



BREADBOARD

- A breadboard is a widely used tool to design and test circuit.
- You do not need to solder wires and components to make a circuit while using a bread board.
- Since, components are not soldered you can change your circuit design at any point without any hassle.



EXISTING SYSTEM

The Existing system to play a pc game is keyboard, joystick etc this all are the hand gadgets to play a pc game . While playing with this gadgets we have to press our fingers continuously and after playing bits of game our fingers start paining. So we fell bouring to play game . By pressing again and again some time our keyboard buttons are damage.

PROPOSED SYSTEM

- We will try to construct a gesture gaming controller using arduino leonardo and flex sensor and other components.
- In this way the game could be controlled without the need of mouse and keyboard.
- The arduino processes the input taken from the flex sensors and provides an analog value as the output.
- Using this value we can determine the particular gesture and use this input to control game.

FUTURE SCOPE

- On a global level, the gaming market stood at a value of $151.55 billion in 2019.
- Game developers throughout developing economies are constantly striving to improve gamers experience for varied platforms, like Xbox, Windows PC and PlayStation and gesture gaming is one of the main part of gaming system.
- In future gesture gaming will be one of the most popular gaming way and it will surpass any other gaming technique like physical devices like mouse and keyboard

UML DIAGRAMS

1 **Use-Case Diagram**

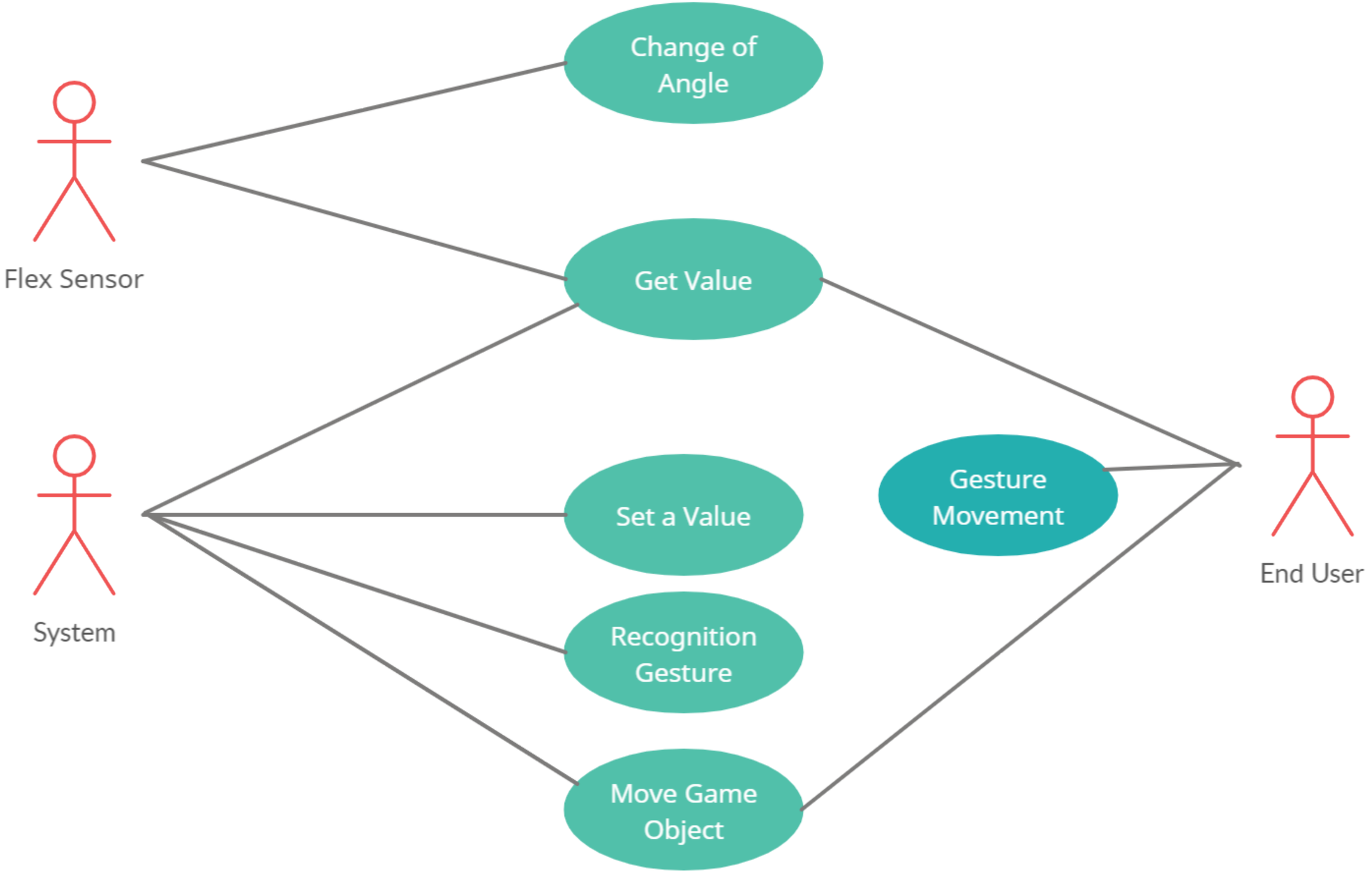
Used to model the system/subsystem of an application

2 **Block Diagram**

Used to design new systems or to describe and improve existing one

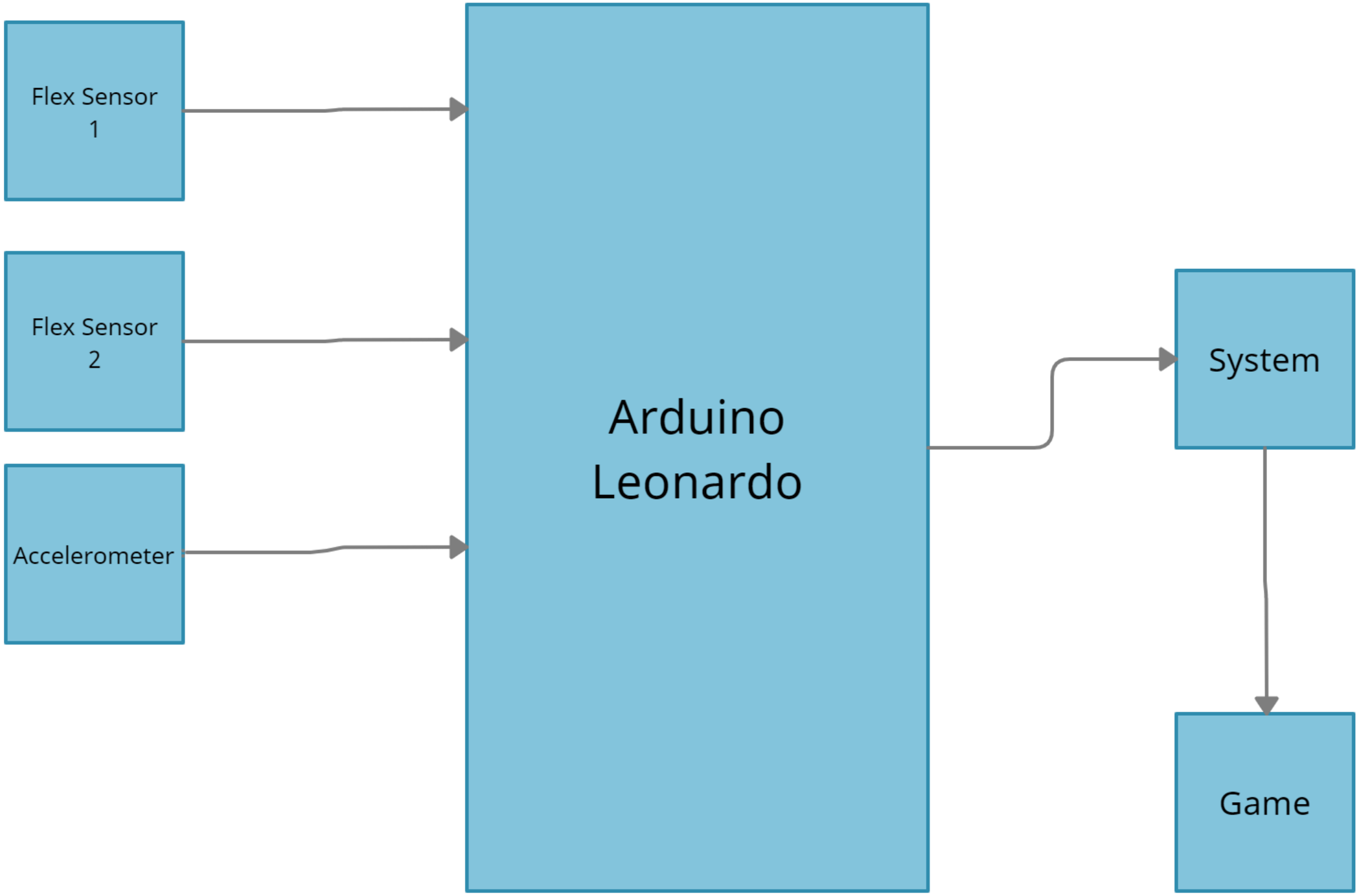
USE-CASE DIAGRAM

- The Use case diagram at its simplest is a representation of a user's interaction with the system that shows the relationship between the user and the different use cases in which the user is involved.
- Below you can see use case of our project


Change of Angle
Flex Sensor
Get Value
System
Set a Value
Recognition Gesture
Move Game Object
Gesture Movement
End User

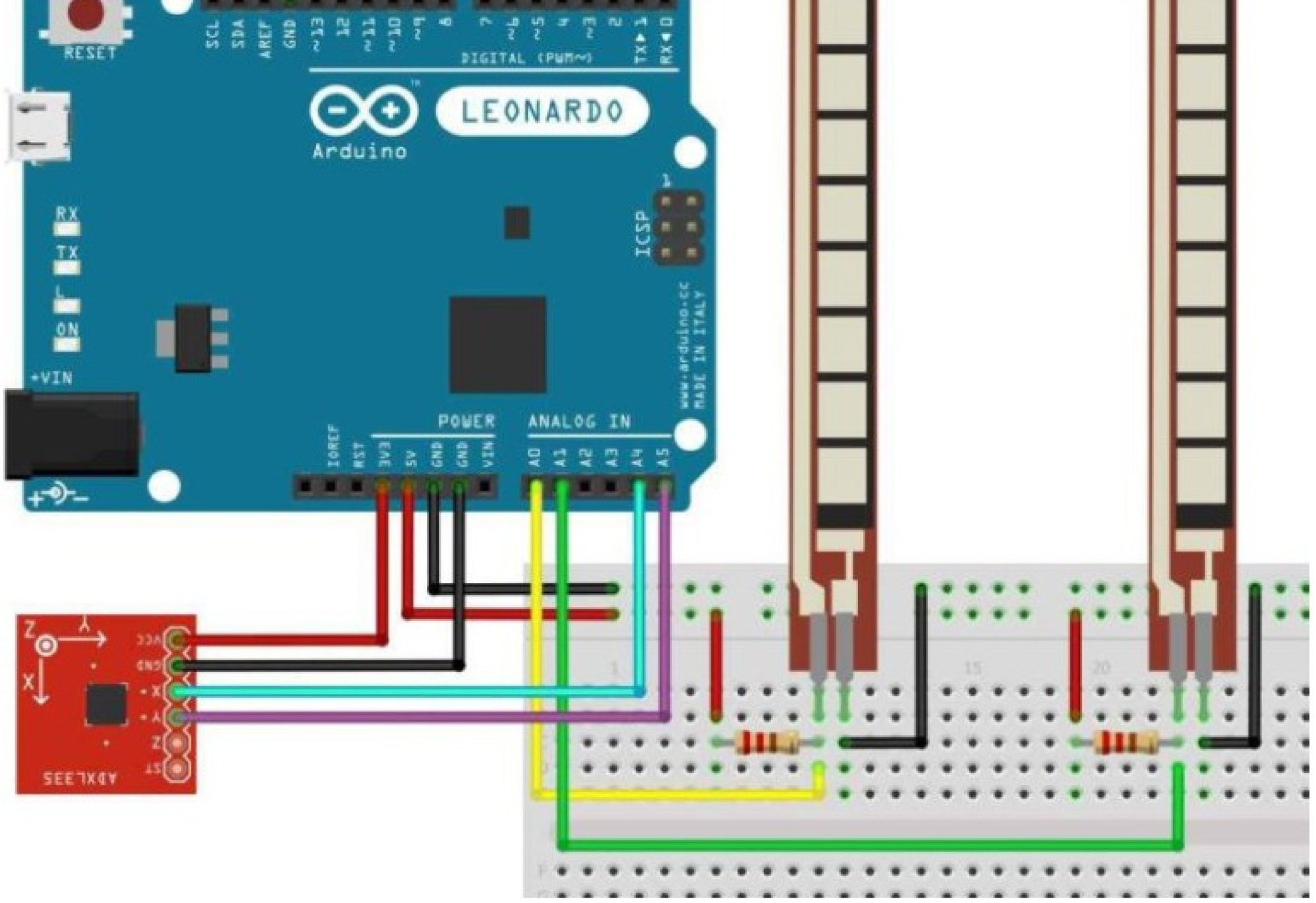
BLOCK DIAGRAM

- The block diagram of Game Controls Through Gesture consists mainly three inputs, first 2 flex sensor and second one accelerometer.
- You can see block diagram below


Flex Sensor 1
Flex Sensor 2
Accelerometer
Arduino Leonardo
System
Game

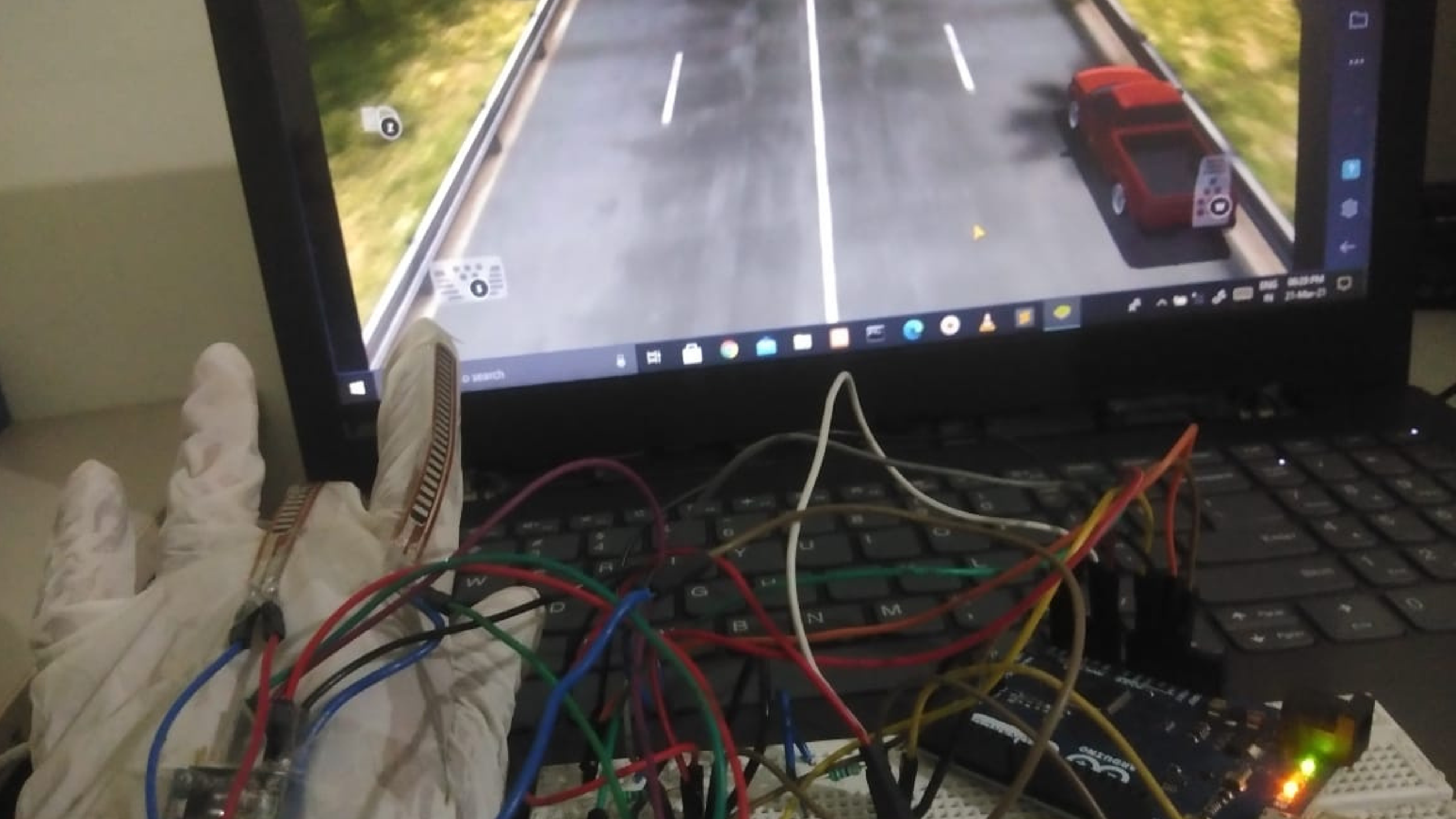
CIRCUIT DIAGRAM

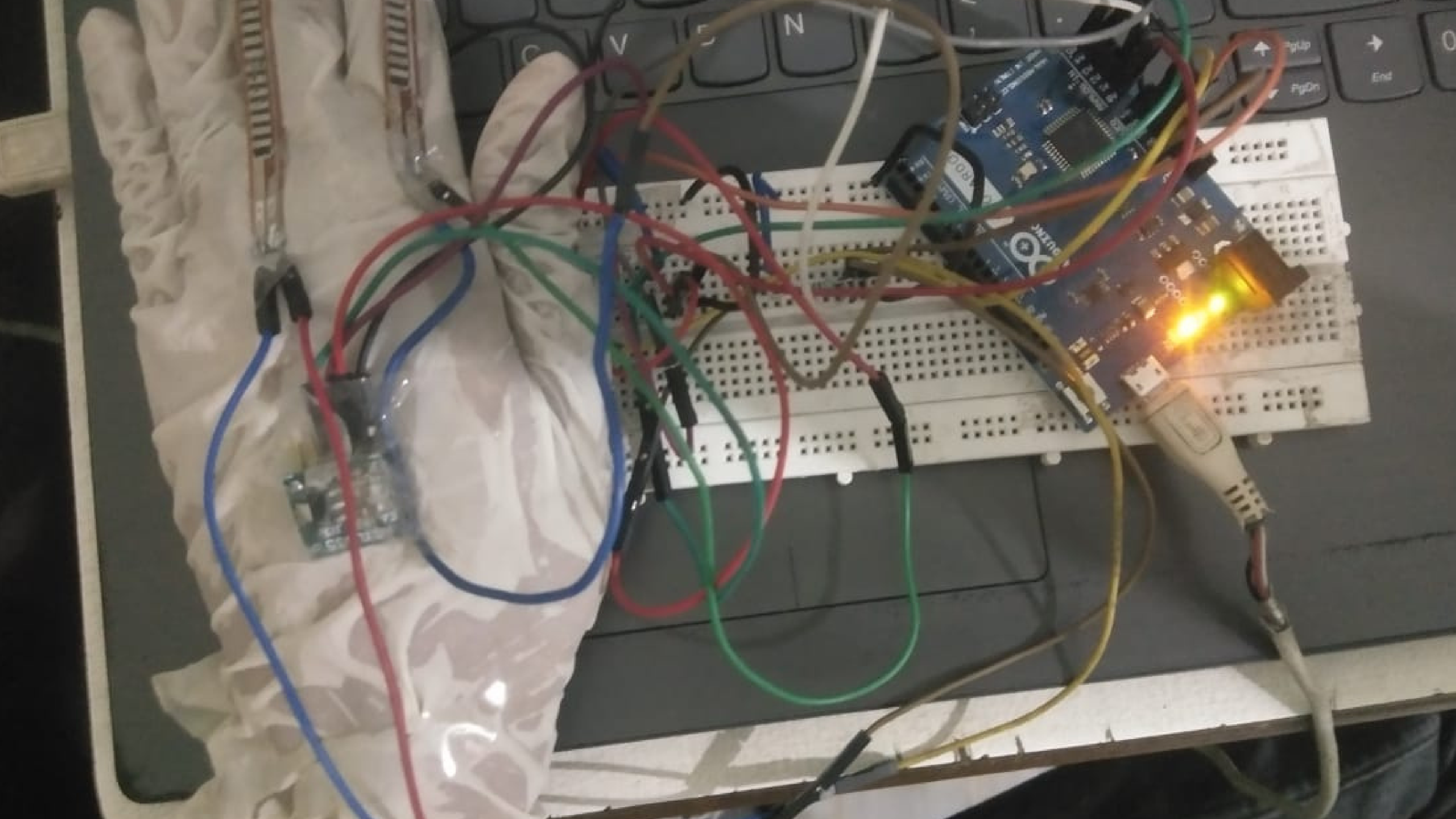
- The project uses arduino leonardo as the microcontroller at left side in which all other components are connected.
- You can see cricuit diagram below


RESET
LEONARDO
Arduino
DIGITAL (PWM~)
ICSP
RX
TX
L
ON
+VIN
POWER
ANALOG IN
IOREF
RST
3V3
5V
GND
GND
VIN
A0
A1
A2
A3
A4
A5
www.arduino.cc
MADE IN ITALY
ADXL335
VCC
GND
X
Y
Z
ST

SAMPLE IMAGES

NEXT SLIDE





CONCLUSION

- The project aims to build a cheap and usable gesture gaming controller. There are many future scope for this project. Firstly, instead of using keyboard, we can use this controller to play games. We can implement the Game controller for other games as well. Depending on the Demands of that particular game, we can make an effective Controller with the required sensor.
- In this work, we described a design process of a gesture game controller. This project aim is to build a future proof gesture controller which we can use in our life to play game.

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THANK YOU