TINKERING LAB PROJECT

GameGestureGenius

TEAM MEMBERS: (GROUP 12)

- Aaniranjan Saraf (2021mmb1340)
- Ankit Kumar (2021mmb1342)
- Avik Roy (2021mmb1345)
- Rakesh Chaudhary (2021mmb1356)
- Tanvi Singhal (2021mmb1361)
- Tulsi Jhade (2021mmb1362)

INTRODUCTION:

Our project, **Game Gesture Genius** blends arduino-tech with immersive gaming. We have developed a system that uses advanced IR sensing to detect a variety of hand gestures, that include left, right, up, down, and proximity. This allows gamers to control popular games such as Subway Surfers and Temple Run with their hand movements in the air! (without physical touch) enhancing the overall gaming experience.

Players can use simple hand gestures to navigate through challenging obstacles and control their game characters with precision. In-game choices and power-up activation are made simple by the proximity sensing technology, which also makes it simpler for players to go forward in the game.Our system is made to be simple to use and intuitive so that both amateur and expert players may have a smooth gaming experience.

HARDWARE (COMPONENTS REQUIRED)

1.ARDUINO UNO (1)

It is an electronic board.It is controlled by simple programming and it is used to read many sensors like as IR sensor , US sensor ,Gas sensor etc and according to programming we perform action .

2.APDS-9960(GESTURE SENSOR)(1):

It is an infrared sensor , it has both tx and rx which detect the motion , it detects four direction motion(left,right,down and up).It also detect Red,Green and Blue color.

3.RESISTOR(3):

It is used to control the current flow .There is voltage drop across the resistor.

4.JUMPER WIRE:

It is used for connection of circuit.

5.FLEX SENSOR :

A flex sensor or bend sensor is a sensor that measures the amount of deflection or bending. Usually, the sensor is stuck to the surface, and resistance of sensor element is varied by bending the surface.

6.BREADBOARD :

A breadboard is a construction base used to build semi-permanent prototypes of electronic circuits.

SOFTWARE :

1.ARDUINO IDE:

It is used for coding of arduino according to our component.And code uploads by this ide.

2.BLUE STACKS:

BlueStacks is an American technology company known for the BlueStacks App.Player and other cloud-based cross-platform products. The BlueStacks App Player allows Android applications to run on computers running Microsoft Windows or macOS.

3.SUBWAY SUFFERS

WORKING OF GESTURE CONTROLLED GAMING:

Gesture Control of Games Using APDS-9960 and Arduino UNO:

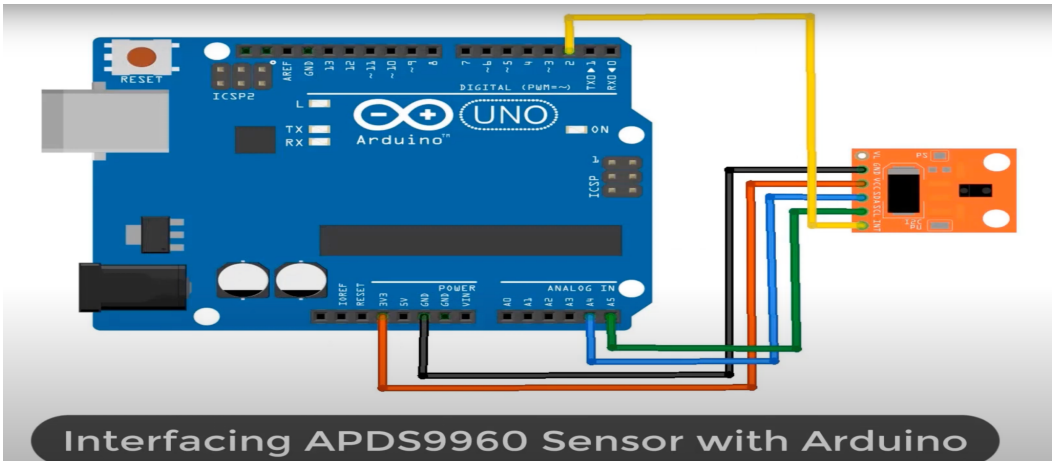
Recently, especially in the area of human-computer interaction, gesture detection technology has grown in popularity. We can manage electrical equipment, machinery, and even video games remotely with the use of gesture recognition sensors. In this projectwe will be utilising an Arduino Uno and the APDS-9960 sensor and more similar electronic modules to control video games like Subway Surfers and Temple Run with nothing but contactless hand gestures!

1. The APDS-9960 is a digital RGB, proximity, and gesture sensor that is used in gesture detection, proximity detection,it is based on the ATmega328P microprocessor. We are creating a gesture control system for gaming by combining the power of the APDS-9960 and Ardunio-UNO.

2. The APDS-9960 sensor must first be connected to the Arduino Uno in order to begin this project. The wiring schematic for attaching the sensor to the Arduino.

- VCC to 5V
- GND to GND
- SDA to A4
- SCL to A5

IT IS SHOWN BELOW:



3.Installing the APDS-9960 library on the Arduino IDE is required once the sensor has been linked to the Arduino Uno. This library offers tools for reading sensor data and translating them into certain motions. Then, we may associate each motion with a certain game activity.

4.For instance, we may map the swipe left and swipe right gestures to move the player left and right, up and up, and down and down, respectively, in the game. The APDS-9960 library may be used to create code that receives sensor readings and translates them into certain motions in order to do this.

5.Once the gestures have been assigned to the controllers of the game, we must employ a software interface, such as Bluetooth or USB, to transmit the gesture data to the game being played on a computer or mobile device. This enables us to play the game utilizing our own gesture control method.

APPLICATIONS:

The APDS-9960 sensor and an Arduino Uno gesture controlled gaming being very versatile, could be used to create a interesting gesture control system that can be used on a variety of devices for educational games that could be used for teaching autistic children and contributing to their betterment in this way.