**GESTURE BASED WIRELESS ROBOT GAMING**

**AIM:**

The main aim of this project is to develop a wireless robot gaming using MEMS technology.

**PURPOSE:**

The purpose of this project is to design a robot whose direction are controller using hand movements.

**CONTROL SECTION:**

POWER SUPPLY

LCD DISPLAY

MEMS

HT12E

ENCODER

RF TRANSMITTER

MICRO CONTROLLER

(AT89S52)

**ROBOT SECTION:-**

POWER SUPPLY

LCD DISPLAY

16 X 2 LINES

MICRO CONTROLLER

(AT89S52)

HT12D

DECODER

RF RX

MOTOR

DRIVER (L293D)

GEAR MOTORS

**Power Supply:**

**Step Down**

**Transformer**

**Bridge**

**Rectifier**

**Filter**

**Circuit**

**Regulator section**

**DESCRIPTION:**

This project is to demonstrate that accelerometers can be used to effectively translate finger and hand gestures into computer interpreted signals. For gesture recognition the accelerometer data is calibrated and filtered. The accelerometers can measure the magnitude and direction of gravity in addition to movement induced acceleration. In order to calibrate the accelerometers, we rotate the device’s sensitive axis with respect to gravity and use the resultant signal as an absolute measurement.

In this project controlling of the Robot is done by MEMS accelerometer. Depending on the direction of the MEMS, the microcontroller receives different signals and it is encoded by RF encoder and transmitted to the robot section. In the robot section, this data is received and decoded by RF decoder and then given to the microcontroller. Depending on the received direction, the microcontroller controls the robot using the motor driver and the motors. The wireless communication is done using the RF communication.

**HARDWARE COMPONENTS:**

1. Micro controller (AT89S52)
2. Power supply
3. LCD(16x2 LINES)
4. MEMS
5. Motor driver
6. Motor
7. RF TX & RF RX
8. Encoder & Decoder

**SOFTWARE TOOLS:**

1. Keil u-Vision
2. ISP
3. Express PCB

**RESULT:**

Hence, using this project, we can control the direction of the robot wirelessly using the MEMS and RF technology.