



# EMERGENCY MOMENT SENSOR FOR PARALYZED PEOPLE

- Motion detection can be a life-changing technology for individuals with paralysis, enabling them to interact with their environment and regain some independence. In today's rapidly advancing world of medical technology, ensuring the safety and well-being of individuals with mobility impairments is paramount.
- One significant challenge faced by paralyzed individuals and their caregivers is the ability to promptly detect and respond to emergency situations. This is where the emergency moment sensor for paralyzed people comes into play.
- This state of the art device is designed to monitor the vital signs and movements of individuals with paralysis, providing a reliable and immediate alert system in case of emergencies. The device can detect critical incidents such as falls, seizures, and other health-related anomalies that may require urgent attention.

# ADXL 335 Accelerometer:

## Motion Tracking

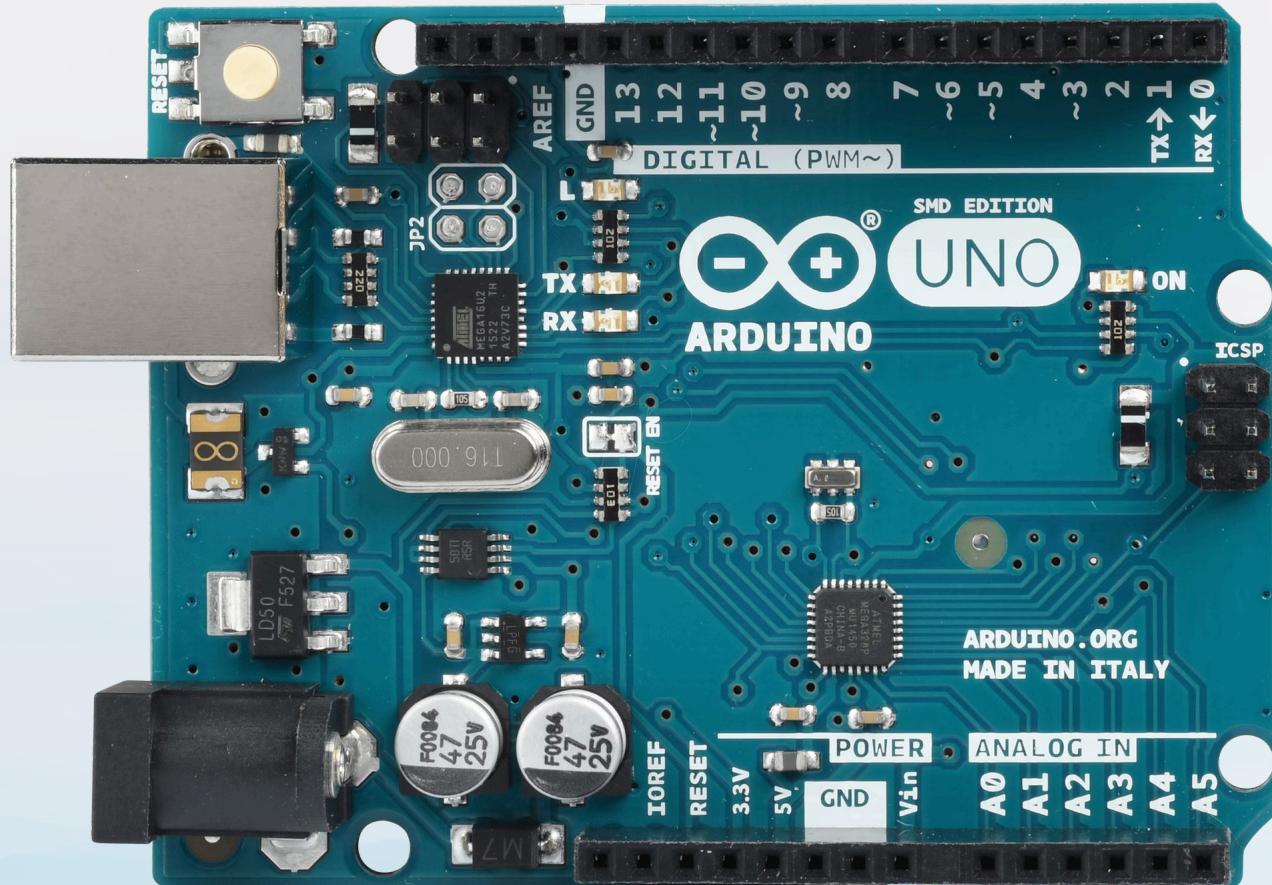
The ADXL 335 Accelerometer is a powerful inertial measurement unit that can accurately track the movements and orientation of the user's body, even with limited mobility.

## Gesture Control

By detecting subtle muscle movements or body shifts, the sensor can translate them into meaningful commands to control devices or interfaces.

## Rehabilitation Monitoring

Healthcare providers can use the sensor to monitor the progress of physical therapy exercises and track improvements in mobility over time.



# Arduino:

## Data Processing

The Arduino board acts as the central processing unit, receiving data from the sensors and interpreting the user's movements and intentions.

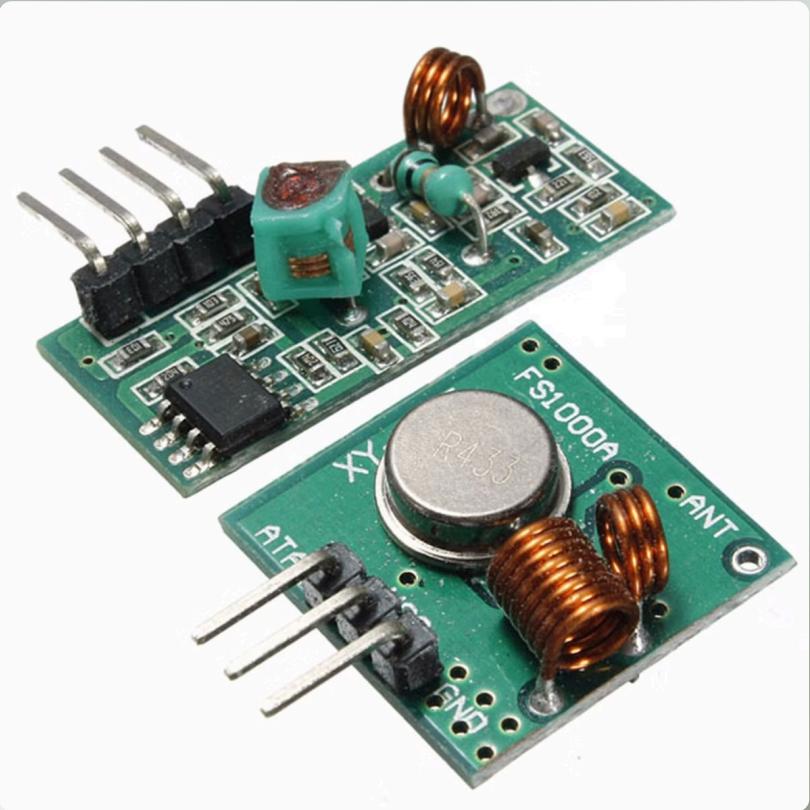
## Interfacing

The Arduino seamlessly connects the various components of the system, including the sensor, wireless module, display, and output devices.

## Programmability

The open-source Arduino platform allows for customization and the development of specialized algorithms to cater to the unique needs of each user.

# RF Transmitter and Receiver FS1000A 433MHz:



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## Wireless Connectivity

The FS1000A module provides a reliable and low-latency wireless link between the motion detection system and the controlled devices or interfaces.

## Extended Range

The 433MHz frequency allows for a significant communication range, ensuring that the user can control devices from a distance without line-of-sight limitations.

## Energy-efficient

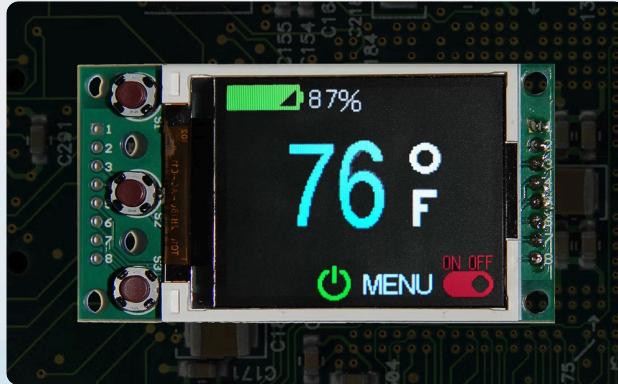
The RF module's low power consumption helps to extend the overall battery life of the motion detection system.

# LCD Display:



## Real-time Feedback

The LCD display presents the user with immediate visual feedback on the system's status, detected movements, and any relevant information.



## Intuitive Interface

The display can be customized to provide a user-friendly interface, allowing the user to navigate and control the system with ease.



## Data Visualization

The LCD can be used to visualize data related to the user's movements, rehabilitation progress, or other relevant metrics.

# Buzzer and Push Buttons:



## Input Controls

The push buttons allow the user to interact with the system, triggering specific commands or functions.



## Tactile Feedback

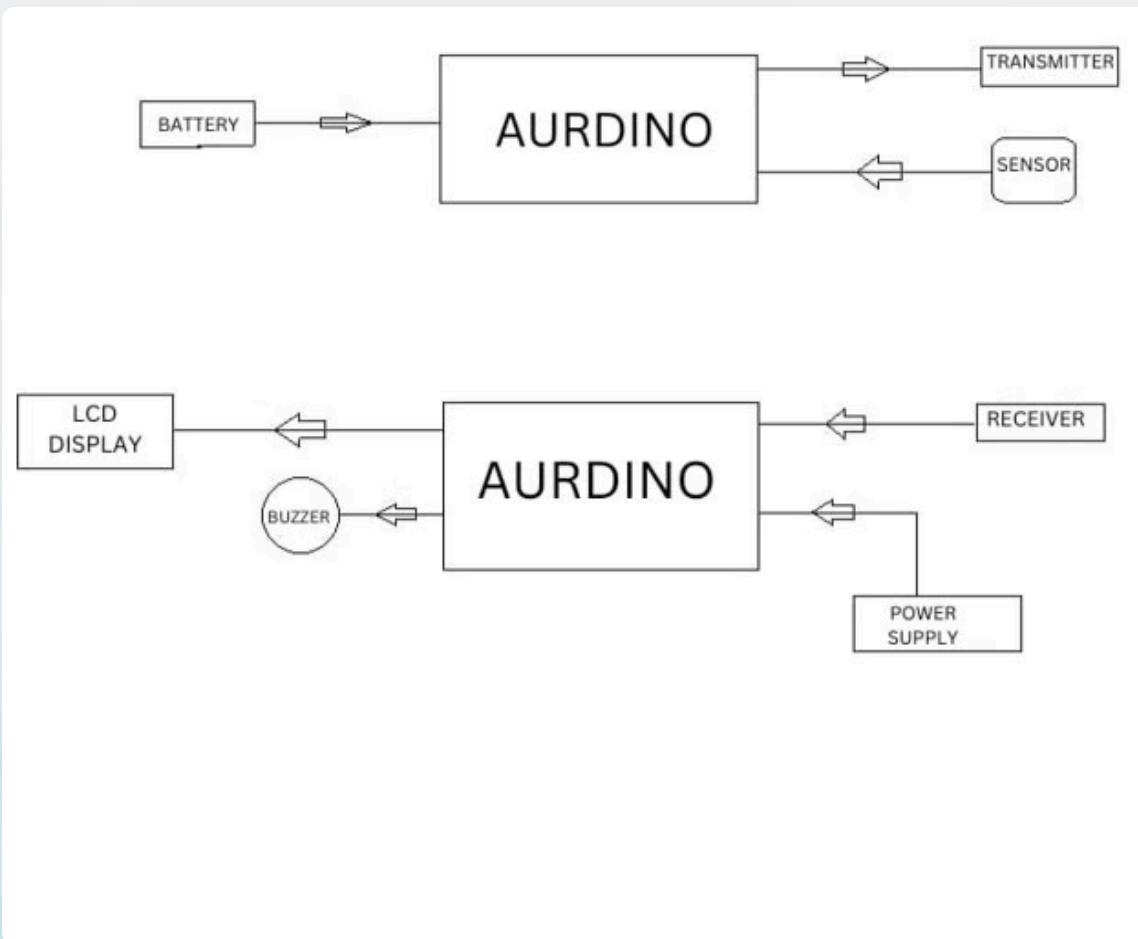
The buzzer provides auditory feedback, alerting the user to system events or confirming their inputs.



## Haptic Cues

Incorporating vibration or other haptic feedback can enhance the user's experience and provide additional sensory information.

# FLOW CHART:



ADXL 335 Accelerometer

Tracks user movements and orientation

Arduino Microcontroller

Processes sensor data and controls the system

FS1000A RF Module

Provides wireless communication and control

LCD Display

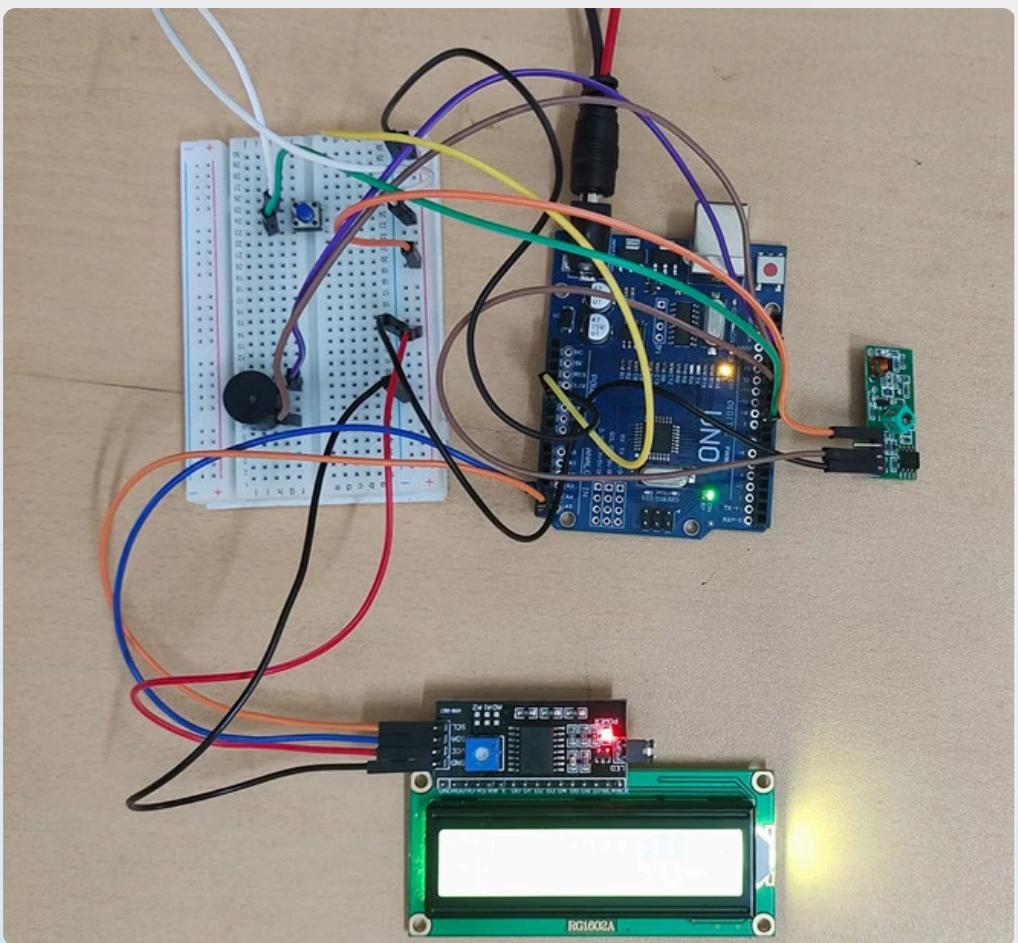
Provides visual feedback and interface

Buzzer and Push Buttons

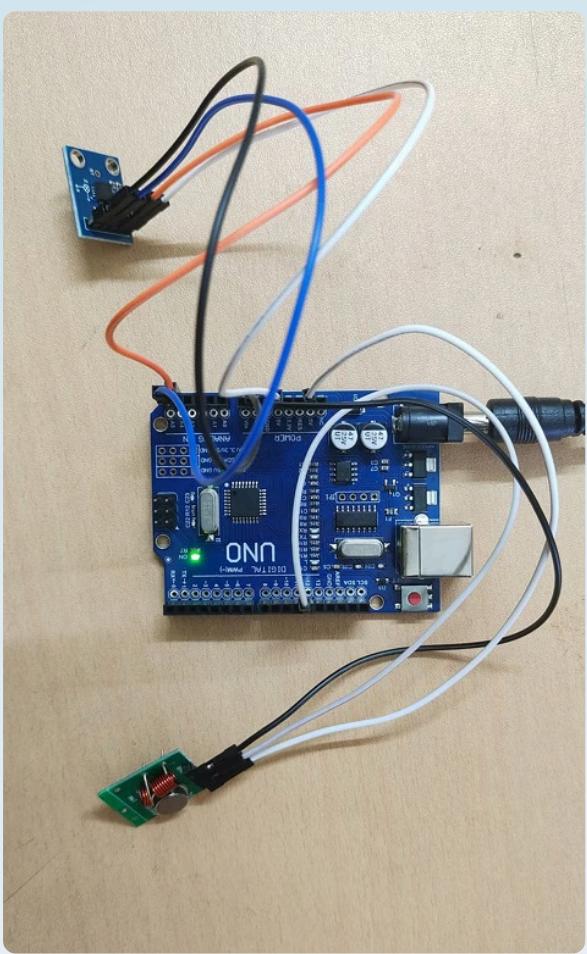
Enable tactile input and output

# CIRCUIT DIAGRAM:

## Receiver Circuit:



## Transmitter Circuit:



# Conclusion and Potential Future Developments

## 1 Improved Accuracy

Advances in sensor technology and data processing algorithms can enhance the precision and responsiveness of the motion detection system.

## 2 Expanded Applications

The system can be adapted to control a wider range of devices, from smart home appliances to robotic assistants, further empowering users with paralysis.

## 3 Integration with Assistive Devices

Seamless integration with existing assistive technologies, such as wheelchairs or prosthetics, can create a more comprehensive and integrated solution.



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