Pain management system for Bedridden person Using Audio Guided Robotic ARM

The main aim of the project is to design a TENS machine based robotic ARM which is controlled by the user through voice by using android mobile application. In this project we are using Bluetooth technology for wireless controlling of ARM. It is very useful to the pain management systems.

This project makes a use of Arduino uno microcontroller which is connected with input and output modules through program. TENS machine is connected to the Arduino through relays. Here relay works as a switch to ON/OFF the tens machine. HC-05 Bluetooth module is used for receiving the voice commands from android APP. Four SERVO motors are uses to design an ARM to pick and place the electrodes and place at a specific part of the person.

When the user gives the voice command from Bluetooth mobile application, this data received by HC-05 Bluetooth module and fed as same to the Arduino. Then Arduino will control the ARM to pick and place the electrodes at a specific body part of the person, after placing the electrodes Arduino will switch ON/OFF the tense machine particular duration of time, It will generate the small electrical impulses to the affected area which help to reduce pain and muscle spasms. To achieve this task Arduino loaded program written in embedded C language.

Main objective of this project:

- Design a TENS machine-based pain management system.
- Design an ARM to pick and place the electrodes.
- Voice based controlling of robotic ARM using Bluetooth technology.
- Using Arduino UNO to achieve this task.

The main building blocks of the project are:

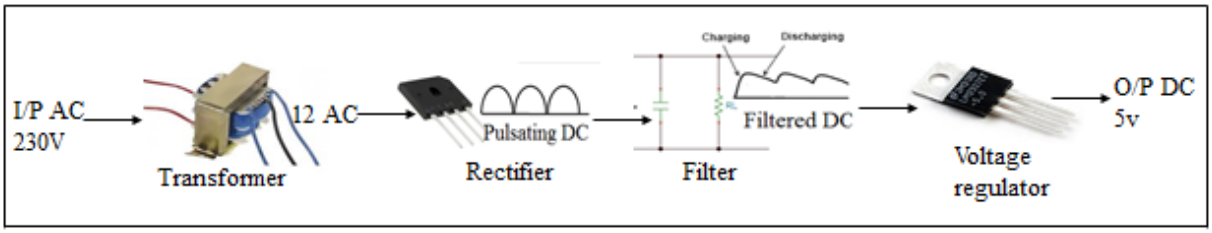
- Arduino UNO microcontroller.

- Adapter power supply.
- HC-05 Bluetooth module.
- Servo motors.
- Relay along with TENS machine.
- Gripper.

Software's used:

1. Arduino IDE for compiling and dumping code into controller
2. Express SCH for Circuit design.

Regulated power supply:



Block diagram:

Block Diagram