2024

Project Proposal

TRANSCUTANEOUS ELECTRICAL NERVE STIMULATOR (TENS) WITH ELECTRO MYOGRAPHY (EMG)

AGNILA JOYE

Project Proposal

Name : Transcutaneous Electrical Nerve Stimulator (TENS) with Electro myography (EMG).

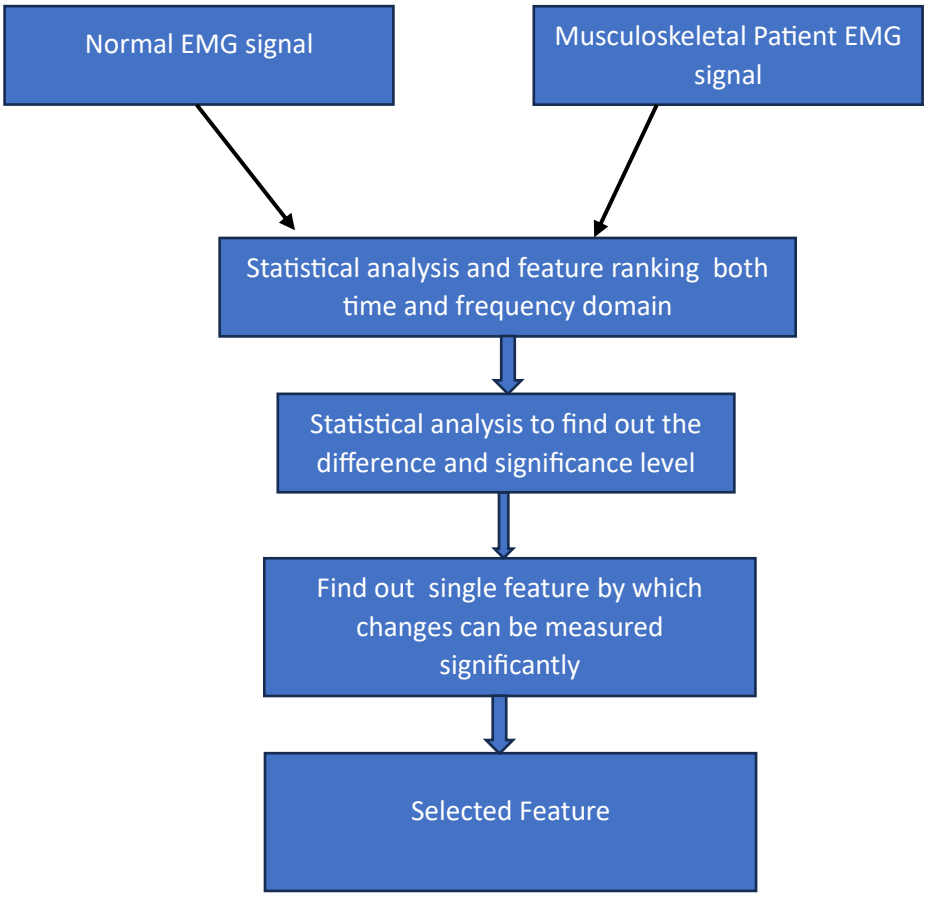
Background study:

Electromyography (EMG) and Transcutaneous Electrical Nerve Stimulation (TENS) are essential in neuromuscular diagnostics and pain management. EMG, developed from early 19th-century discoveries, measures muscle electrical activity to diagnose conditions like muscular dystrophy and nerve disorders. TENS, rooted in ancient pain relief methods and modernized in the 1960s, uses electrical currents to alleviate pain by blocking pain signals and increasing endorphin production. Both technologies are vital in medical diagnostics and therapeutic applications, providing critical insights and relief in various neuromuscular and pain-related conditions.

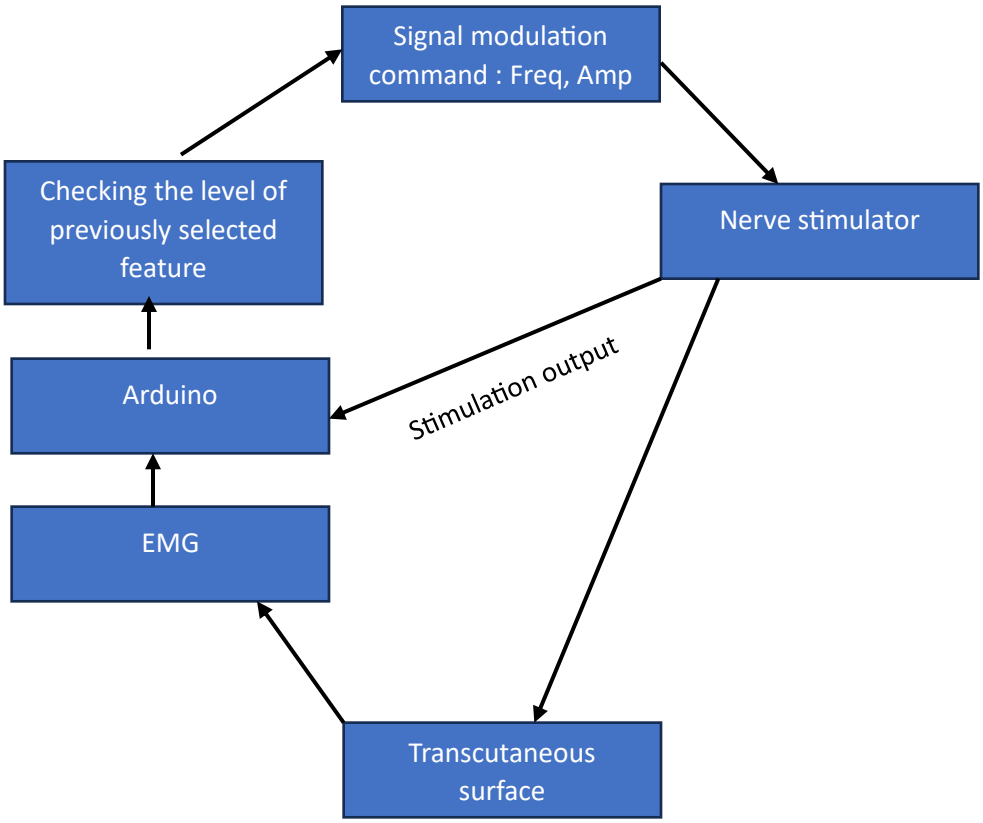
Objective :

Simultaneously performing EMG and TENS , Where pulsing rate/ frequency and Magnitude will be automatically controlled by the data from EMG on the pain surface.

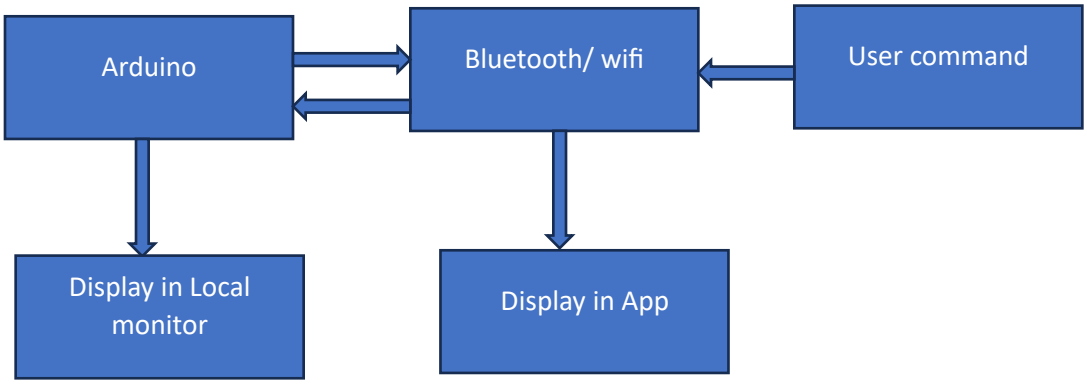
Proposal Steps : (01): package software : BIOPAC inc & MATLAB / previous dataset



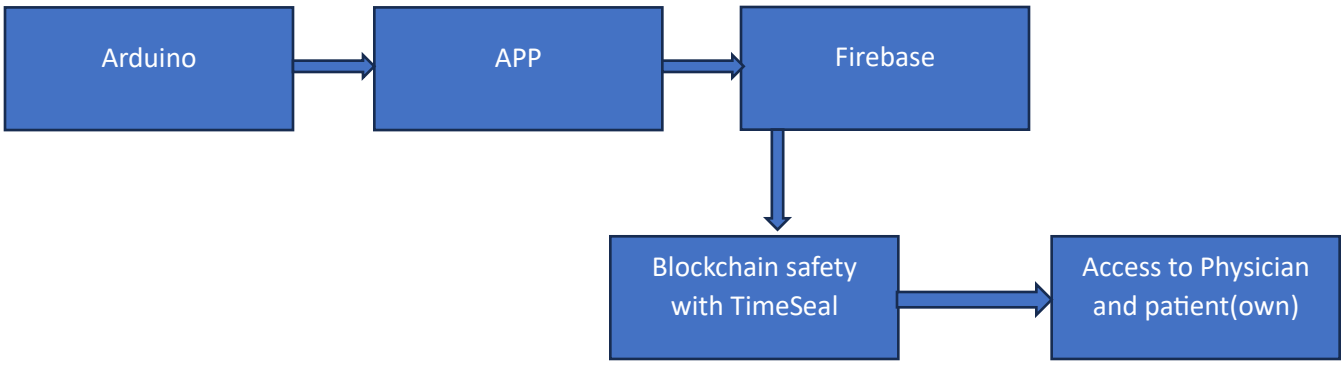
Proposal Step : 02 : Automated Feed back control .



Proposal Step : 03 : Remote observation and control .



Pro posal Step : 04 : Storing and data safety



Estimated Cost Calculation :

Component Name	Price	Status
Nerve stimulator with manual control	2500	done
Digital potentiometer (x3)	370*3	Yet to buy
EMG module	2550	Yet to buy
EMG circuit (home built)	1500+	Yet to build
Other costing	500	

Changes between previous and new setup:

1. EMG modalities will be added
2. Digital potentiometer will be added to control the frequency and magnitude control
3. Firebase data storing will be added
4. Blockchain with timeseal will be added
5. Caging will be changed