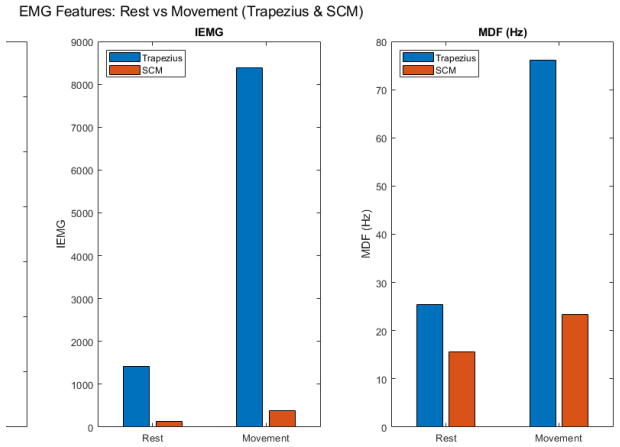
Amir Shahzad Project Profile

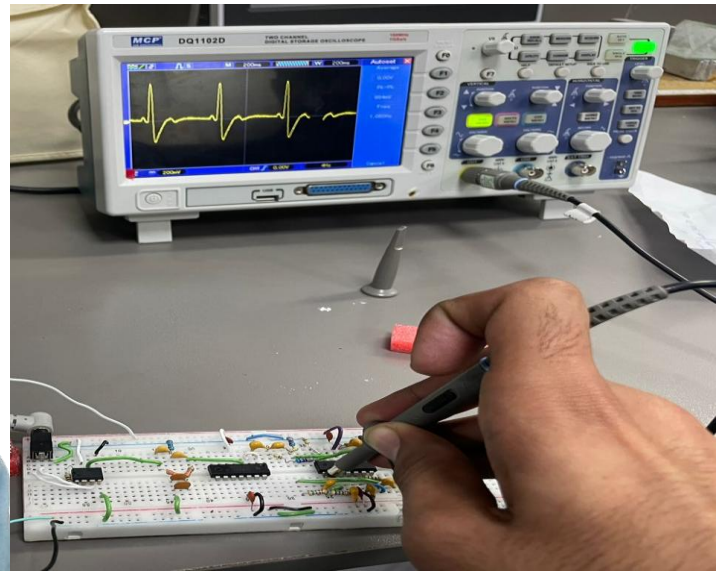
Bachelors of Engineering
Biomedical Engineering

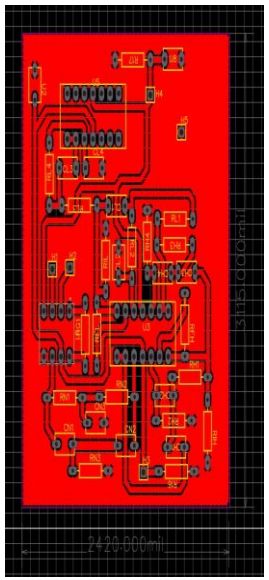
Department of Biomedical Engineering
Air university, Islamabad

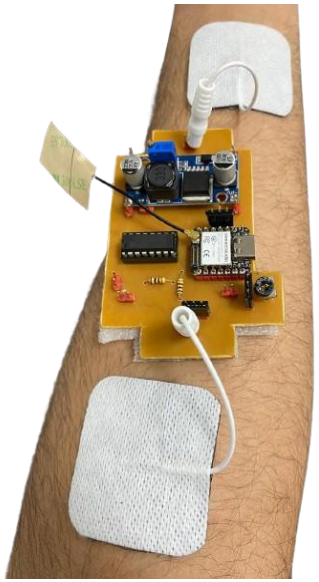
Introduction: Engineering Tools for Homeostasis Research

- **Amir Shahzad**
- Biomedical Engineering Final Semester
- ***Focus:*** Physiological Signal Acquisition (ECG, EMG, Temperature)
- ***Core Skill:*** Custom Hardware Design & Python/MATLAB Pipelines
- **Islamabad, Pakistan**

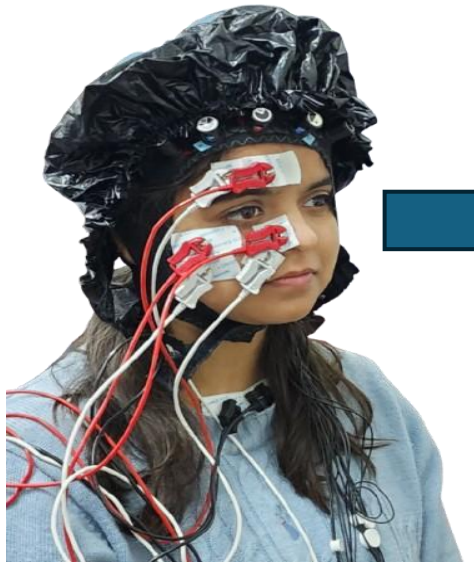








Biopotential-Based System for Real-Time Anger Detection



Electrode Designing

Power Circuit

Charging Circuit

Rechargeable Battery

ML Algorithm

Mobile App

Sends Alerts via

- Mobile Notifications
- Email

Facial EMG Acquisition

EMG Processsing System

Bipolar Leads

EMG Acquisition System

EMG Signals

Microcontroller ESP - 32

Buzzer Alert

ECG Acquisition

ECG

ECG Processing System

Bipolar Leads

ECG Acquisition System

ECG Signals

Additional ADC

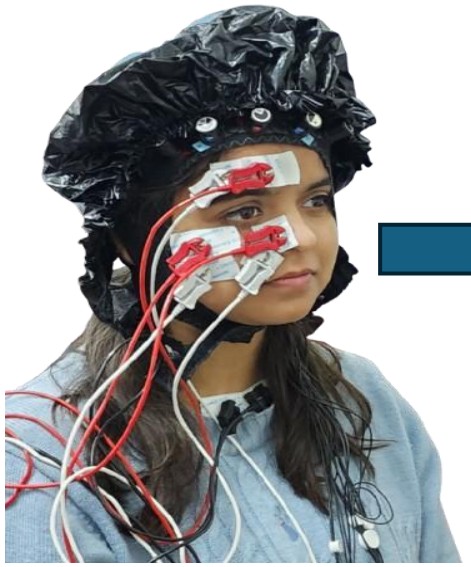
ADC

A D

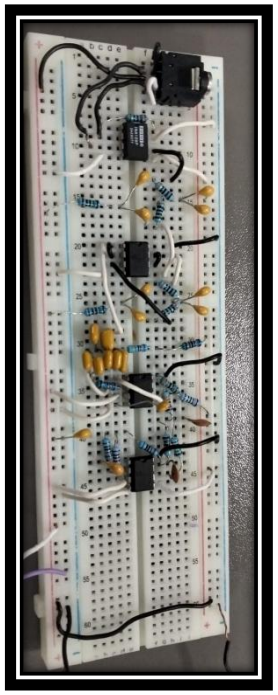
Wearable Device

Biopotential-Based System for Real-Time Anger Detection

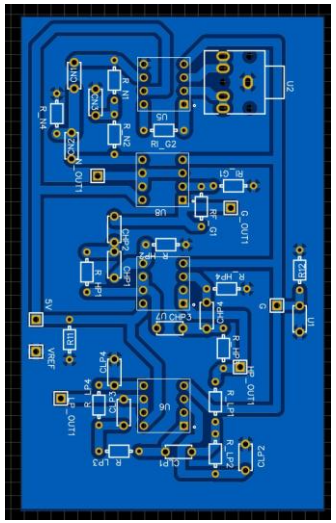
Facial EMG



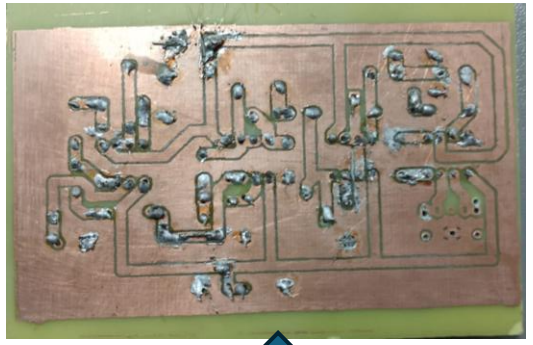
Electrodes Placement

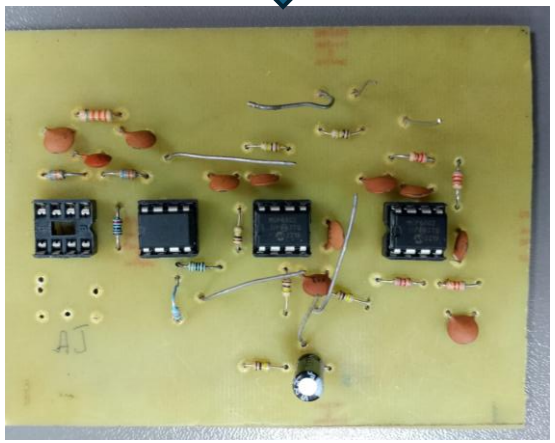


BreadBoard Circuit

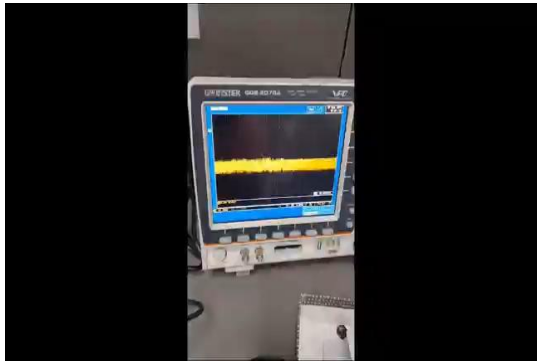


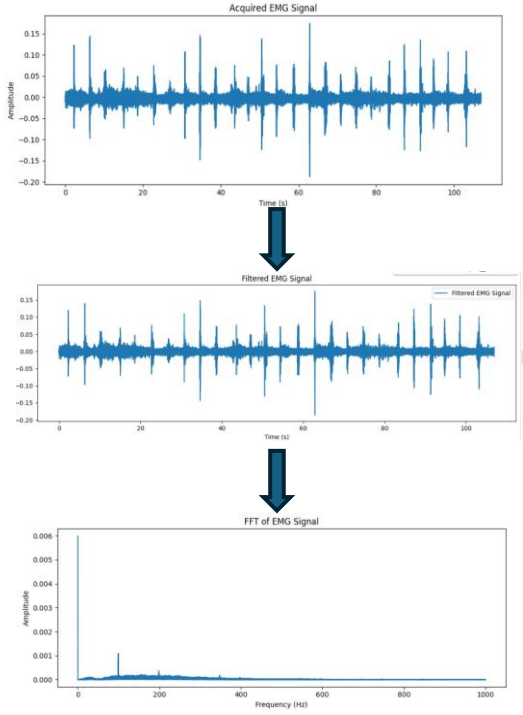
2--layer PCB Of EMG Acquisition System





Hardware

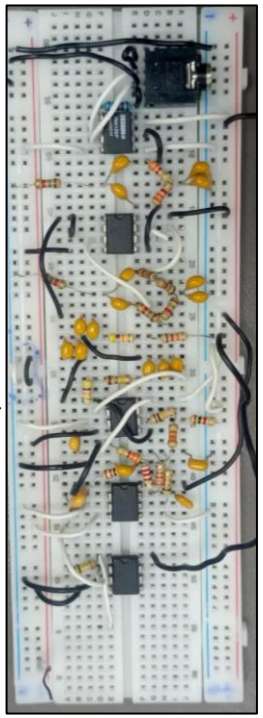




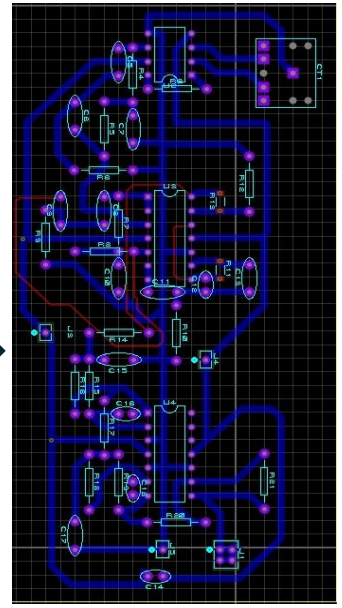
Biopotential-Based System for Real-Time Anger Detection

Neck ECG

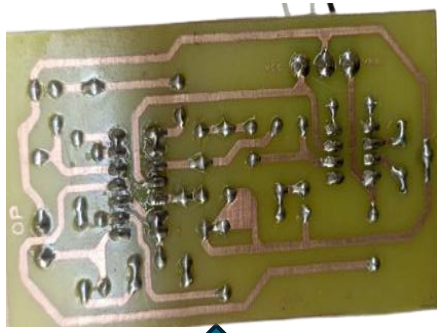
Electrodes Placement



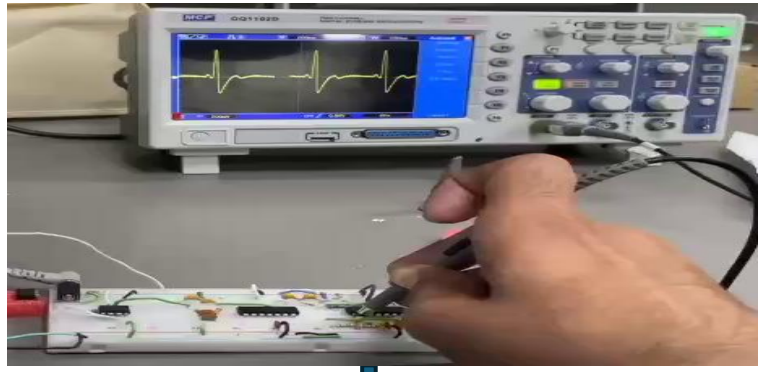
BreadBoard Circuit

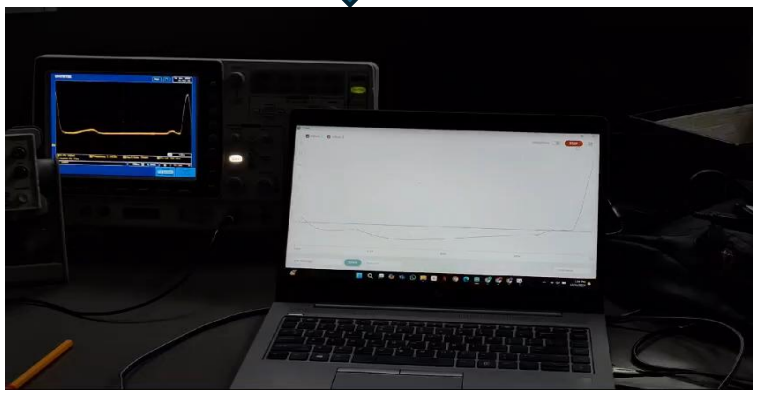


2--layer PCB Of ECG Acquisition System



Hardware

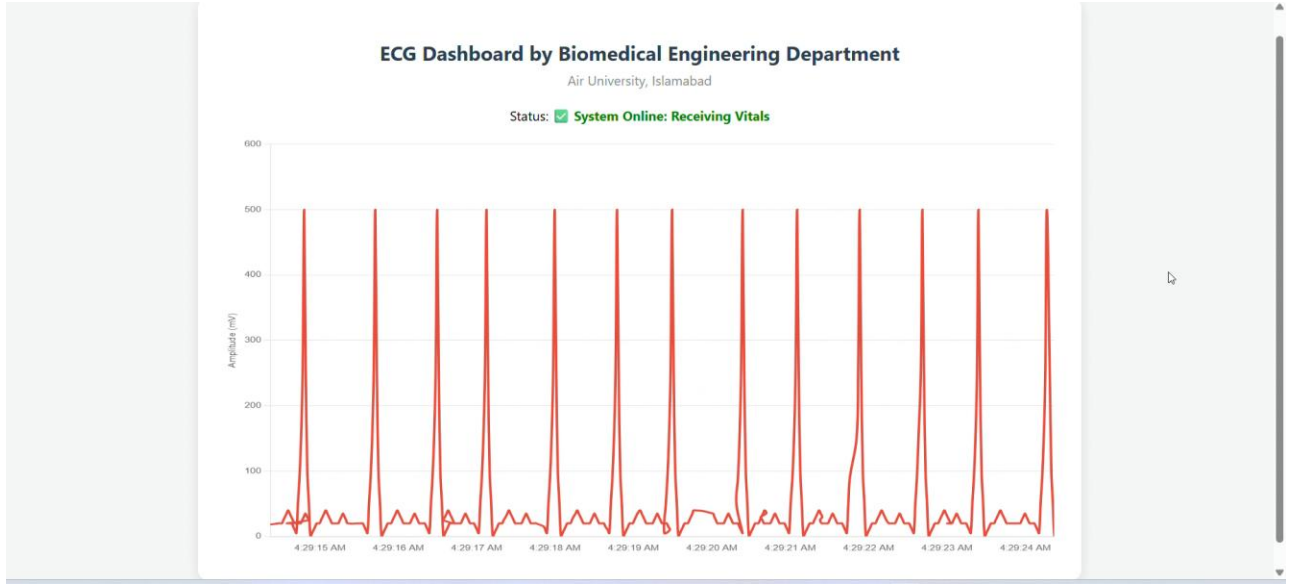




LIVE ECG

Biopotential-Based System for Real-Time Anger Detection

Proposed 3D-Design



Live transmission of ECG signals on aws to WebSocket

Biopotential-Based System for Real-Time Anger Detection

Next Working on this project…. It will end in June.