Project 4:

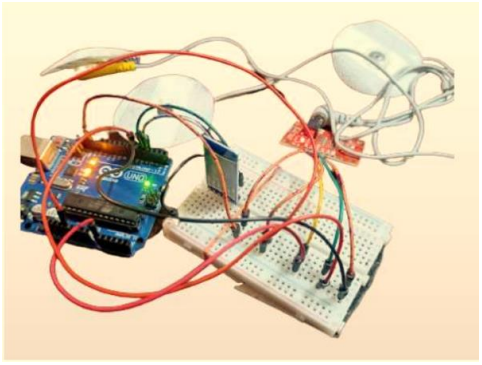
A Cost-Effective, Machine Learning-Enhanced ECG

Monitoring System for Rural and Elderly Cardiac Care

Abstract

This project utilizes advanced sensors such as a pulse sensor and an ECG monitoring sensor integrated with an Arduino Uno to design and implement a compact heart monitoring system. With the growing importance of ECG monitoring in everyday health management, this system provides a means to analyze heartbeats, detect heart conditions, and identify potential heart diseases. The patient's ECG is captured through a 3-lead electrode system using the AD8232 sensor, which amplifies minor bio-signals for processing by the Arduino. The heart's electrical activity, measured by this sensor, is collected and transmitted to a web application via the Bluetooth HC-05 module. This data is stored and analyzed using machine learning algorithms to predict heart arrhythmias or diseases. The project highlights the potential of integrating sensor technology with Arduino and web connectivity to provide a comprehensive and accessible heart health monitoring solution.

Hardware Model -



Result: ECG Report