SAHYADRI
COLLEGE OF ENGINEERING & MANAGEMENT
An Autonomous Institution
MANGALURU

Project Report

Topic:-HEART BEAT MONITORING DEVICE

SECTION :- 'I' SECTION.

Team Members –

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INTRODUCTION:

- Heartbeat monitoring is a vital component in health-related projects. Using an Arduino Nano, a Pulse Sensor Amped, and an OLED display, you can build a compact, real-time heartbeat monitoring system. This project is ideal for learning about bio-sensing and wearable technology applications.

Pulse Sensor Amped for Arduino Nano

The Pulse Sensor Amped is a plug-and-play heart-rate sensor for Arduino. It combines an optical heart-rate sensor with amplification and noise cancellation circuitry, enabling accurate detection of heartbeats when placed on the skin.

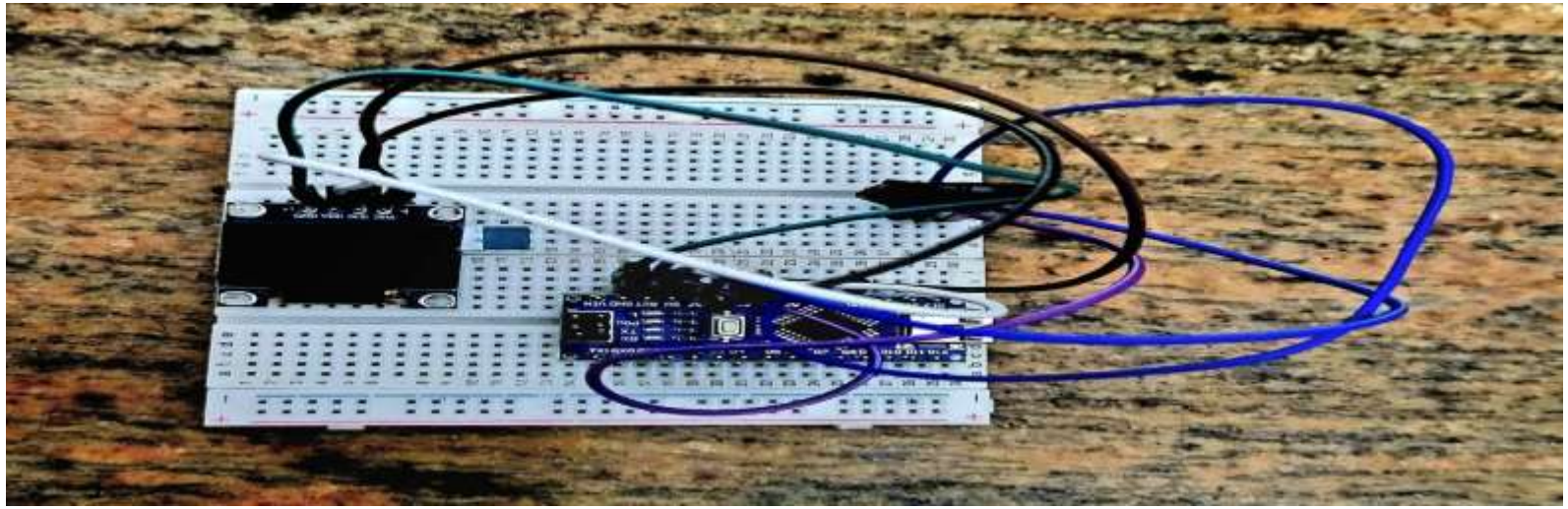
Key Features

1. Easy to Use: Compact and ready to integrate with microcontrollers.
2. Accurate Measurements: Built-in amplification and noise filtering.
3. Versatile: Works with fingers, earlobes, or other body parts.
4. Low Power Consumption: Ideal for portable and wearable projects.
5. Visual Feedback: Includes a built-in LED that flashes with each heartbeat.

Basic Components Required:

1. Arduino Nano : Acts as the microcontroller to process sensor data.
2. Pulse Sensor : AmpedCaptures heartbeat signals using optical sensing.
3. OLED Display (0.96 inch) : Displays the heart rate in real time.
4. Breadboard and Jumper Wires : For prototyping connections.
5. Power Supply :Used 5v powerbank.

Circuit Diagram:



Wiring and Connections:

1. Pulse Sensor:

- VCC (Red Wire): Connect to Arduino Nano's 5V pin.
- GND (Black Wire): Connect to Arduino Nano's GND.
- Signal (Purple Wire): Connect to A0 (Analog Pin 0) of the Arduino Nano.

2. OLED Display:

- VCC: Connect to 5V pin of the Arduino Nano.
- GND: Connect to GND.
- SCL: Connect to A5 (I2C Clock Pin).
- SDA: Connect to A4 (I2C Data Pin).

3. Arduino Nano:Ensure all connections are secured on a breadboard for easy prototyping.

Applications:

- Wearable Devices: Fitness trackers and health monitoring systems.
- Medical Instruments: Heart rate monitoring during physical therapy or workouts.
- Biofeedback Systems: Used in research for studying physiological responses.
- Educational Projects: Understanding pulse sensing and signal processing