Title: ML-based Heart Monitoring System in Low-Resource Setting

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KEYWORDS: Machine Learning model, heart monitoring, abnormalities, severity level

DOMAIN: Healthcare (Prognosis)

SUMMARY:

The heart monitoring system uses machine language models for heart performance characterization and abnormalities detection. It comprises a device, a control server, and a communication network. The device is configured to collect health parameters from the user and then deliver them to the control server. Further, the microcontroller analyzes the user's data and other parameters using ML models and classification techniques. The prediction is made by comparing heart abnormalities and related heart issues identified by the ML model with those generated by other predefined ML models. It can analyze and characterize cardiac electro-physiological signals that help diagnose myocardial ischemia before a heart attack. The disclosed invention replaces the bulky and expensive equipment used in monitoring health abnormalities, where expert consultation is required regularly to analyze the health data.

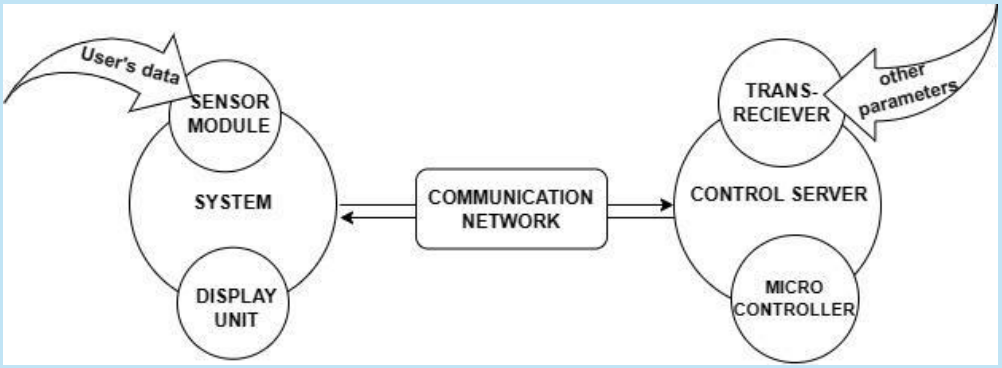

Figure: Systematic Representation of the System and its Components

ADVANTAGES:

1. Low cost, easy to use, portable, AI-enabled device.
2. Capable of computing huge and complex data.
3. The system can be operated and interpreted without expert consultation.
4. Severity level interpretation, hence prompt management of the disease.
5. The user receives scheduled updates and alerts for any data changes.
6. The AI model retains historical data and can undergo retraining.

APPLICATION:

1. The system can be incorporated into portable and wearable devices.
2. Due to its low resource setting, this technology is well suited for rural populations and can be distributed to Accredited Social Health Activists (ASHA) workers.

SCALE OF DEVELOPMENT: Model developed available at lab-scale.

TECHNOLOGY READINESS LEVEL: TRL 3

IP STATUS: Indian Patent Application (202111049455)