



SIGNAL ACQUISITION USING A MULTI-FREQUENCY CHOPPING IN A SINGLE CIRCUITRY

IITM Technology Available for Licensing

Problem Statement

- Low frequency biopotential signals suffer from high noise and DC offset, necessitating complex chopper stabilization techniques to mitigate these effects.
- Current signal acquisition systems use separate circuitry for chopping and acquisition, leading to increased power consumption and component count.
- There is a critical need to simplify the analog front end of signal acquisition systems to reduce power consumption and component count while maintaining signal integrity.

Intellectual Property

- IITM IDF Ref. 1074
- IN 377751 - Patent Granted
- PCT/IN2015/000058

Technology Category/ Market

Category - Biomedical Signal Processing

Applications- Medical Monitoring

Industry- Healthcare and Telemedicine

Market- Telehealth market is projected to expand at a robust **CAGR of 19.7%** from 2023 to 2030, reaching a value of USD 504.24 billion.

Key Features / Value Proposition

1. Enhanced Signal Processing Efficiency:

- Utilizing multi-frequency chopping technology streamlines signal acquisition processes, reducing noise and DC offset effects while simplifying circuitry.

2. Reduced Power Consumption:

- By processing multiple signals simultaneously in a single circuitry, power consumption is minimized, enhancing energy efficiency in signal acquisition systems.

3. Simplified System Design:

- Integrating chopping and processing functionalities into a unified system reduces component count and complexity

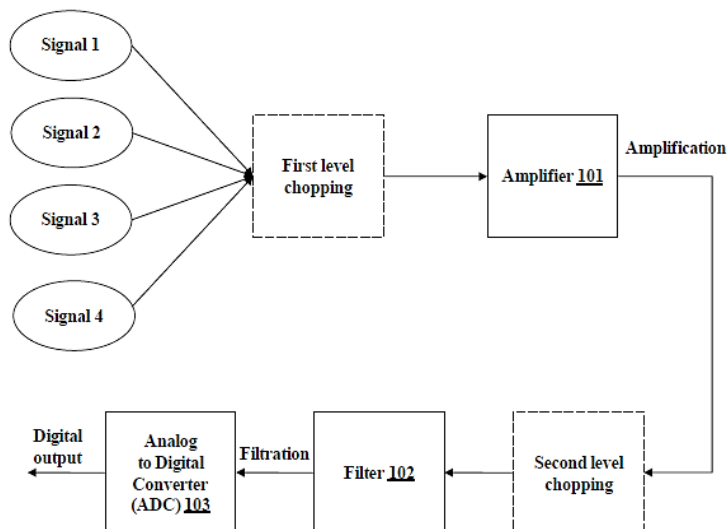


FIG. 1. illustrates an overview of a signal acquisition system using a multi-frequency chopping.

Technology

- The method and system utilize multi-frequency chopping to process multiple signals simultaneously in a single circuitry, **enabling noise reduction and elimination of DC offset.**
- This approach involves applying different levels of chopping at varying frequencies to effectively process the signals, reducing complexity and power consumption compared to traditional methods.
- The system includes components like chopper amplifiers, filters, and Analog-to-Digital Converters (ADCs), streamlining the signal acquisition process and enhancing efficiency in biopotential signal measurement and assessment.

TRL (Technology Readiness Level)

TRL- 4: Technology validated in lab scale.

Research Lab

Prof. Aniruddhan S,
Dept. of Electrical Engineering

CONTACT US

Dr. Dara Ajay, Head
Technology Transfer Office,
IPM Cell- IC&SR, IIT Madras

IITM TTO Website:
<https://ipm.icsr.in/ipm/>

Email: smipm-icsr@icsrpiis.iitm.ac.in

sm-marketing@imail.iitm.ac.in

Phone: +91-44-2257 9756/ 9719