

P37 - Edu-Mphy: A Low-Cost Multi-Physiological Recording System for Education and Research in Healthcare and Engineering

4. Biomedical engineering education

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Abstract text*: Physiological measurements play a vital role in healthcare, providing valuable insights into health characteristics through precise recording and signal processing. This work introduces Edu-Mphy, a novel low-cost multi-physiological recording system developed specifically for educational purposes in research and engineering. The system incorporates biopotential, bioimpedance, and optical measurements, aiming to enhance understanding and promote accessibility in analyzing physiological parameters. Leveraging the Raspberry Pi platform, we have successfully designed an open access custom-made measurement device capable of non-invasively acquiring physiological signals. The obtained waveforms exhibit encouraging outcomes, corroborating the findings of previous studies, and affirming the system's applicability on diverse biomedical applications. The educational system built around this recording platform empowers students, researchers, and educators, providing them with hands-on experience and enabling exploration of the intricate relationships between physiological signals and health outcomes. Notably, the system's low-cost nature ensures affordability and widespread availability, democratizing access to multi-physiological recording capabilities and fostering inclusivity in research and education. By integrating biopotential, bioimpedance, and optical measurements, the system offers a comprehensive educational toolset for studying human health characteristics. It effectively bridges the gap between theoretical knowledge and practical application, facilitating interdisciplinary learning and encouraging collaboration among diverse fields of study. In conclusion, Edu-Mphy represents a low-cost multi-physiological recording system designed specifically for educational purposes, highlighting its feasibility and potential impact on research and engineering education. The system's affordability, versatility, and accessibility significantly contribute to advancing knowledge and promoting innovation in the field of physiological measurements, empower the scientific community, and pave the way for future advancements in healthcare and biomedical engineering.