



LOSSLESS ELECTROCARDIOGRAM COMPRESSION TECHNIQUE AND GSM BASED TELE-CARDIOLOGY APPLICATION

S. K. Mukhopadhyay¹, S. Ghosh², S. Chakraborty², S. Das², M. Mitra¹, S. Mitra³

¹Department of Applied Physics, Faculty of Technology, University of Calcutta, 92 A.P.C.
Road, Kolkata - 700 009, India.

²Acharya Prafulla Chandra College (affiliated to West Bengal State University),
Newbarrackpore, Kolkata - 700131, India.

³Department of Electronics, Netaji Nagar Day College (affiliated to University of Calcutta),
170/436, N.S.C. Bose Road, Regent Estate, Kolkata- 700 092, India.

E-mail: sonartoritag@yahoo.co.in, ghoshsaranya89@gmail.com,
chakraborty.sayani90@gmail.com, das.shipraa@yahoo.in,
madhuchhanda94@rediffmail.com, susa68@hotmail.com

Submitted: Mar. 3, 2013

Accepted: May 21, 2013

Published: June 5, 2013

Abstract- Software based efficient lossless Electrocardiogram compression and transmission scheme is proposed here. The algorithm has been tested to various ECG data taken from PTB Diagnostic ECG Database. The compression scheme is such that it outputs only ASCII characters. These characters are transmitted using Global System for Mobile Communication based Short Message Service system and at the receiving end original ECG signal is brought back using the reverse logic of compression. It is observed that the proposed algorithm offers a moderate to high compression ratio (7.18) without any alteration of clinical information (PRD = 0.023%) with an excellent Quality Score (312.17).

Index terms: Sign Byte, Amplification, Grouping, ASCII Character, SMS.