

Implementation of an Improved Model for Medical Images Using PIC Microcontroller in Telemedicine

M. Moorthi¹ and R. Amutha²

*¹Associate Professor, Prathyusha Institute of Technology and Management,
Chennai, Tamil Nadu, India*

E-mail: moorthi.ece@prathyusha.edu.in

²Professor, Department of ECE, SSN College of Engineering, Chennai, Tamil Nadu, India

KEYWORDS Classification. Feature Extraction. GSM. Huffman Coding. K-Means. Segmentation

ABSTRACT This paper aims to design and develop a low-cost, lightweight, portable system for critical patient monitoring system. The proposed system employs a Peripheral Interface Circuit (PIC) Microcontroller and MALAB 7.5.0(R2007) platform that performs analysis of the acquired brain image continuously. A brain tumor is identified and analyzed by detecting the infected region using a combination of Self Organizing Maps (SOM) followed by K-means algorithm. PIC Microcontroller based Region of Interest (ROI) detector in various medical images is implemented on a PIC 16F877A board and is interfaced with a Personal Computer (PC) to send status about the detection of brain tumor serially. If any abnormality is detected by the system, it sends an alarm, which sounds automatically and the warning message is also displayed on the LCD monitor device. Medical images are compressed at a lower bit rate and the abnormal data is transmitted to healthcare services or a personal doctor for diagnosis. Finally, the warning messages are sent to the doctor's mobile whenever the patients require medical advice for treatment.