

Author's Accepted Manuscript

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PII: S0010-4825(17)30099-9
DOI: <http://dx.doi.org/10.1016/j.combiomed.2017.04.013>
Reference: CBM2649

To appear in: *Computers in Biology and Medicine*

Received date: 14 December 2016

Revised date: 16 April 2017

Accepted date: 16 April 2017

Cite this article as: U Rajendra Acharya, Vidya K Sudarshan, Soon Qing Rong Zechariah Tan, Lim Choo Min, Joel EW Koh, Sujatha Nayak and Sulatha V Bhandary, Automated Detection of Premature Delivery Using Empirical Mode and Wavelet Packet Decomposition Techniques with Uterine Electromyogram Signals, *Computers in Biology and Medicine* <http://dx.doi.org/10.1016/j.combiomed.2017.04.013>

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Automated Detection of Premature Delivery Using Empirical Mode and Wavelet Packet Decomposition Techniques with Uterine Electromyogram Signals

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ABSTRACT

An accurate detection of preterm labor and the risk of preterm delivery before 37 weeks of gestational age is crucial to increase the chance of survival rate for both mother and the infant. Thus, the uterine contractions measured using uterine electromyogram (EMG) or electro hystero gram (EHG) need to have high sensitivity in the detection of true preterm labor signs. However, visual observation and manual interpretation of EHG signals at the time of emergency situation may lead to errors. Therefore, the employment of computer-based approaches can assist in fast and accurate detection during the emergency situation. This work proposes a novel algorithm using empirical mode decomposition (EMD) combined with wavelet packet decomposition (WPD), for automated prediction of pregnant women going to have premature delivery by using

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