

was employed to verify the effectiveness of removing baseline wander. This data set was created under Institutional Review Board approval. The LBNP dataset consisted of a total of 91 subjects. Each subject had a single vector lead ECG recording collected at the sampling rate of 500Hz. The baseline wander in ECG signals demonstrated significant level of variations in the amplitude over the course of the LBNP experiment. During LBNP, subjects are exposed to increasing negative pressure to their lower bodies. This causes a redistribution of blood volume to the lower extremities and abdomen causing a decrease in blood pressure and cardiac output and resulting in an increased respiratory rate. The results of the proposed method are compared with a reference method, called robust locally weighted regression [29], which is often treated as one of the most robust and commonly used methods to remove baseline drift. The robust locally weighted regression method employs two techniques: the local fitting of polynomials and an adaptation of iterated weighted least squares to remove the baseline drift.

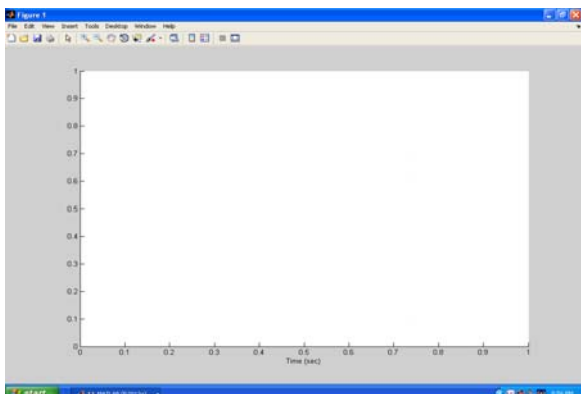


Figure 2: Schematic diagram of proposed method

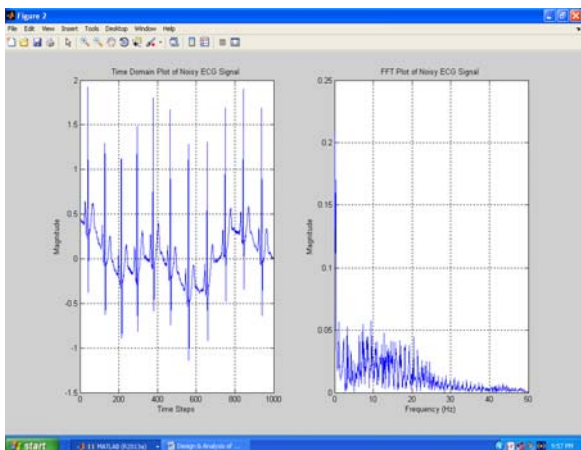


Figure 3: Schematic diagram of proposed method

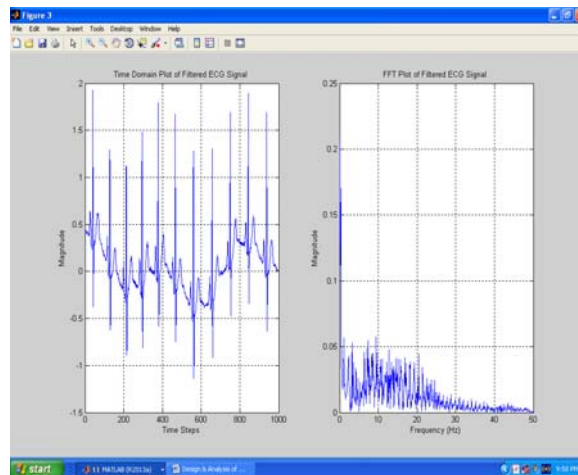


Figure 4: Schematic diagram of proposed method

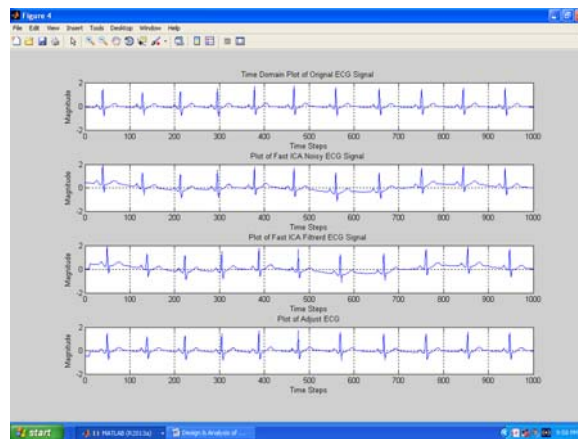


Figure 5: Schematic diagram of proposed method

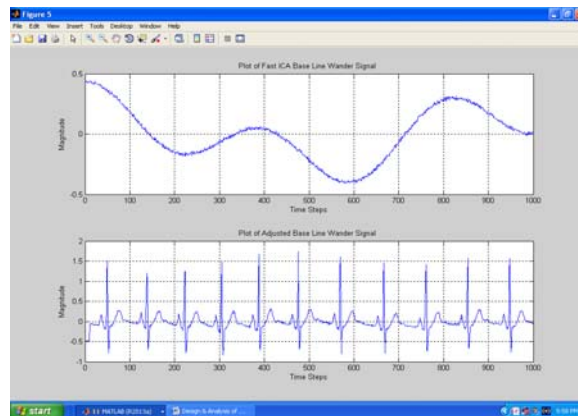


Figure 6: Schematic diagram of proposed method

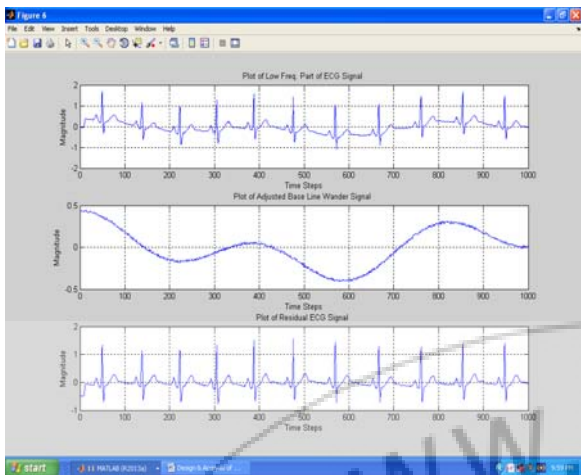


Figure 7: Schematic diagram of proposed method

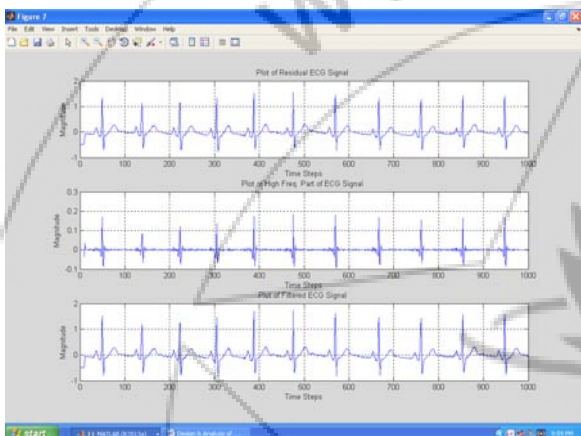


Figure 8: Schematic diagram of proposed method

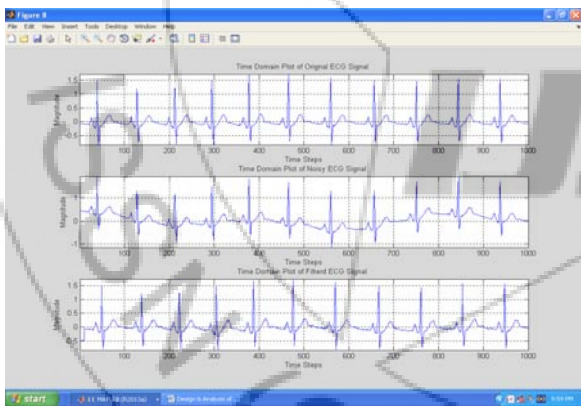


Figure 9: Schematic diagram of proposed method

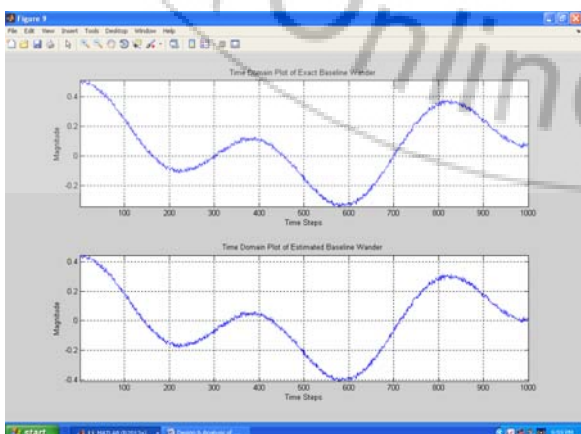


Figure 10: Schematic diagram of proposed method

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