A maternal-fetal monitoring system for use during all stages of pregnancy, including antepartum and intrapartum stages. The maternal-fetal monitoring system of the subject invention comprises (1) a set of sensors; (2) an amplifying/filtering means; (3) a computing means; and (4) a graphical user interface. Accurate clinical data, which can be extracted and provided to the user in real-time using the system of the invention, include without limitation, maternal electrocardiogram (ECG) signals, maternal uterine activity signals (EHG), maternal heart rate, fetal ECG signals, and fetal heart rate. In a preferred embodiment, the maternal-fetal monitoring system of the invention includes an intelligence means, such as a neural network system, to analyze and interpret clinical data for use in clinical diagnosis antepartum, intrapartum and postpartum, as well as delivery strategy.

22 Claims, 23 Drawing Sheets