WHAT IS CLAIMED IS:

1. A noninvasive arterial condition detecting system, comprising:

an electronic stethoscope configured for auscultating a carotid artery to receive a sound signal; and

a processing device connected to the electronic stethoscope,

wherein the processing device configured to record the sound signal, to preprocess the sound signal to reduce noise, to identify sound wave peaks consecutively from the sound signal and valleys adjacent to the sound wave peaks consecutively from the sound signal, to calculate a trough-peak amplitude distance and a trough-peak time distance between every peak and every left-sided valley adjacent to said every peak, to calculate a trough-peak amplitude distance and a trough-peak time distance between said every peak and every right-sided valley adjacent to said every peak, and to generate an estimate result of an arterial condition according to a distribution of both of the trough-peak amplitude distance and the trough-peak time distance, the distribution is generated using a 2-D (two-dimensional) graph,

wherein the arterial condition comprises parameters related to an elasticity of arterial walls or a formation of arterial stenosis,

wherein the processing device is configured to identify a first dominant cluster from the distribution with a highest mean value of trough-peak amplitude distance in the 2-D graph of trough-peak amplitude distance and trough-peak time distance, to estimate the mean value of trough-peak amplitude distance of the first dominant cluster, to compare the mean value of trough-peak amplitude distance of the first dominant cluster with a first threshold value, and when the

mean trough-peak amplitude distance of the first dominant cluster is smaller than the first threshold value, the processing device is configured to determine that the estimate result is abnormality of the arterial condition, wherein the first threshold value is an average of trough-peak amplitude distances of different age groups and genders of sample data.

2. The noninvasive arterial condition detecting system as claimed in claim 1, wherein the processing device is configured to estimate a mean value of trough-peak time distance of the first dominant cluster, to compare the mean value of trough-peak time distance of the first dominant cluster with a second threshold value, and when the trough-peak time distance is larger than the second threshold value, the processing device is configured to determine that the estimate result is abnormality of the arterial condition, wherein the second threshold value is an average of trough-peak time distances within an age group and genders of sample data.

3. The noninvasive arterial condition detecting system as claimed in claim 1, further comprising an earphone connected to the processing device to receive the sound signal from the electronic stethoscope in real-time for aiding to position the electronic stethoscope for auscultating the carotid artery.