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[54] **SYSTEM AND COMPUTER-IMPLEMENTED METHOD FOR FRACTAL-DIMENSION MEASUREMENT FOR TARGET-MOTION ANALYSIS NOISE DISCRIMINATION**

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[52] **U.S. Cl.** **364/550**; 364/554

[58] **Field of Search** 364/550, 553, 364/554; 382/108, 173, 270, 277, 278; 342/90, 159, 195, 196; 128/745; 351/209, 210, 246

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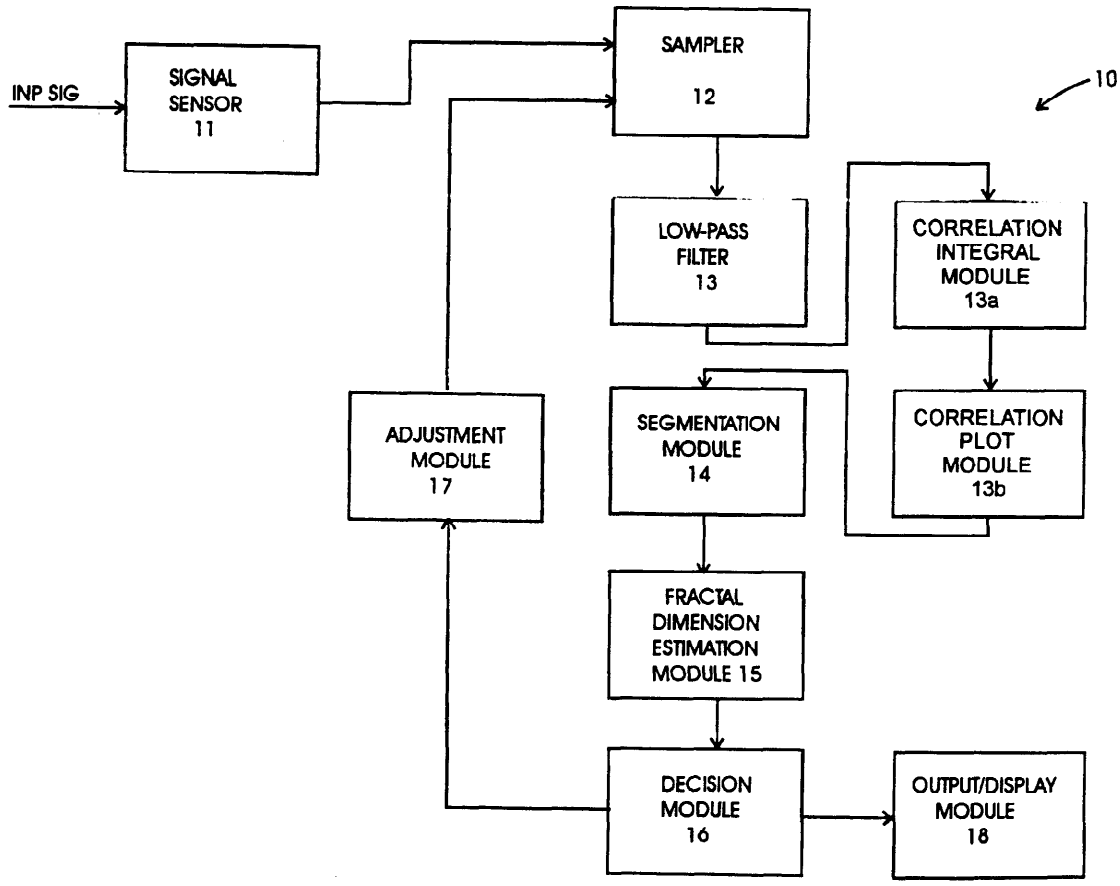
[57] **ABSTRACT**

A signal processing system and computer-implemented method for processing a digital data sequence representing an input signal to generate a fractal dimension value. The system includes a correlation integral value generation module, correlation plot generation module, a segmentation module, correlation dimension generation module, and a control module. The correlation integral value generation module generates a series of correlation integral values for points $w_n(k)$ in "N"-dimensional space corresponding to vectors of said digital data sequence, and in particular generates inter-point distance values within each of a plurality of volume elements of said "N"-dimensional space. The correlation plot generation module generates a correlation integral plot comprising a plot of the correlation integral values as a function of said "N"-dimensional space volume elements. The segmentation module generates, from the plot, a series of correlation integral plot segments.

14 Claims, 4 Drawing Sheets