IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent of:	Gopalakrishnan	
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Title:	METHODS AND SYSTEMS FOR ARRHYTHMIA TRACKING AND SCORING	

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PETITION FOR *INTER PARTES* REVIEW OF UNITED STATES PATENT NO. 10,595,731 PURSUANT TO 35 U.S.C. §§ 311–319, 37 C.F.R. § 42

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APPLE-1012	Tsipouras MG, Fotiadis DI. Automatic arrhythmia detection based on time and time-frequency analysis of heart rate variability. Comput Methods Programs Biomed. 2004 May; 74(2):95-108 ("Tsipouras 2004")
APPLE-1013	Lu S, Zhao H, Ju K, Shin K, Lee M, Shelley K, Chon KH. Can photoplethysmography variability serve as an alternative

	approach to obtain heart rate variability information? J Clin Monit Comput. 2008 Feb; 22(1):23-9 ("Lu 2008")
APPLE-1014	Selvaraj N, Jaryal A, Santhosh J, Deepak KK, Anand S. Assessment of heart rate variability derived from finger-tip photoplethysmography as compared to electrocardiography. J Med Eng Technol. 2008 Nov-Dec; 32(6):479-84 ("Selvaraj 2008")
APPLE-1015	Lu G, Yang F, Taylor JA, Stein JF. A comparison of photoplethysmography and ECG recording to analyse heart rate variability in healthy subjects. J Med Eng Technol. 2009; 33(8):634-41 ("Lu 2009")
APPLE-1016	Suzuki T, Kameyama K, Tamura T. Development of the irregular pulse detection method in daily life using wearable photoplethysmographic sensor. Annu Int Conf IEEE Eng Med Biol Soc. 2009; 2009:6080-3 ("Suzuki 2009")
APPLE-1017	Reed MJ, Robertson CE, Addison PS. Heart rate variability measurements and the prediction of ventricular arrhythmias. QJM. 2005 Feb; 98(2):87-95 ("Reed 2005")
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APPLE-1019	K. Douglas Wilkinson, "The Clinical Use of the Sphygmomanometer," The British Medical Journal, 1189-90 (Dec. 27, 1924) ("Wilkinson")
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