I/WE CLAIM:

1. A non-invasive system for detection of coronary artery disease (CAD) in a person, the system comprises:

a plurality of physiological sensors for capturing a plurality of physiological signals from the person, wherein the plurality of physiological signals includes at least one of phonocardiogram (PCG) signal, photoplethysmogram (PPG) signal, and electrocardiogram (ECG) signal;

a memory; and

a processor in communication with the memory, the processor further comprises:

a signal processing module processing the plurality of physiological signals to remove a plurality of noises;

a feature extraction module for: extracting features from each processed physiological signal of the plurality of physiological signals, wherein the features comprises at least one of time domain features, frequency domain features, time-frequency domain features and statistical features, wherein the features corresponding to heart beat morphology are extracted using a wide band PCG signal, and wherein the features corresponding to heart rate variability (HRV) are extracted using a narrow band PPG signal and the ECG signal; and

forming composite feature sets from a combination of extracted features corresponding to the heart beat morphology and the HRV;

a classification module for classifying the person for each of the composite feature sets independently, as CAD or normal, using a plurality of physiological signal classifiers, wherein the classification is done using a supervised machine learning technique;

a fusion module for fusing an output of each of the physiological signal classifiers by a hyper-plane based fusion approach, to produce a fused output; and

a detection module for detecting a presence of the coronary artery disease in the person by choosing a particular physiological signal classifier to detect CAD, and wherein the particular physiological signal classifier is chosen based on the fused output.

2. One or more non-transitory machine readable information storage mediums comprising one or more instructions which when executed by one or more hardware processors perform actions comprising:

capturing a plurality of physiological signals from the person using a plurality of physiological sensors, wherein the plurality of physiological signals includes at least one of phonocardiogram (PCG) signal, photoplethysmogram (PPG) signal, and electrocardiogram (ECG) signal;

processing the plurality of physiological signals to remove a plurality of noises using a signal processing module;

extracting features from each processed physiological signal of the plurality of physiological signals using a feature extraction module, wherein the features comprises at least one of time domain features, frequency domain features, time-frequency domain features and statistical features, wherein the features corresponding to heart beat morphology are extracted using a wide band PCG signal, and wherein the features corresponding to heart rate variability (HRV) are extracted using a narrow band PPG signal and the ECG signal;

forming composite feature sets from a combination of extracted features corresponding to the heart beat morphology and the HRV;

classifying the person for each of the composite sets features independently using a plurality of physiological signal classifiers, as CAD or normal, wherein the classification is done using a supervised machine learning technique;

fusing an output of each of the physiological signal classifiers by a hyper-plane based fusion approach, to produce a fused output; and

detecting a presence of coronary artery disease in the person by choosing a particular physiological signal classifier to detect CAD, and wherein the particular physiological signal classifier is chosen based on the fused output.