# iCordisX: SmartPhone-Based Personalized Cardiac Monitoring Using Computer Vision and Bluetooth Low Energy

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Heart disease is a prevalent issue in the modern world, with 84 million people in the US alone that require regular checkups with clinicians. iCordisX aims to provide a personalized and data-driven supplement for cardiac anomalies that acts as a dependable healthcare interface for wireless ECG monitors. Compatible with both iOS and Android mobile operating systems, iCordisX is accessible to 77% of adults. By operating through the Bluetooth Low Energy platform (iOS) and all sectors of Bluetooth (Android), iCordisX can connect to a common variety of wireless cardiac monitors, and receive electrocardiogram data directly from the wireless link. Through a personalized account system, users will be able to keep track of their heart health data from day to day via personalized features, and monitor trends over time as stored on a web server. The app also provides options for a monitoring and a diagnosis mode, the former of which will recognize anomalies in real time, and the latter which is meant to acquire detailed statistics from the received data. A Python algorithm extracts features from the signal after an initial filtering process, and a recursive neural network was applied to predict the next time-series of the electrocardiogram wave for anomaly detection. The monitoring model was verified via a MATLAB program, and the MIT-BIH database for normal sinus rhythms was used as the baseline comparison data.

**Awards Won:**