

Date	22 October 2022
Team ID	PNT2022TMID45689
Project Name	Classification of Arrhythmia by Using Deep Learning with 2-D ECG Spectral Image Representation

Define CS fit, intro CL	<div>CUSTOMER SEGMENT(S)<div>CS</div><p>Doctors, Medical professionals and patients come under the category of individual users.</p><p>A group of professionals working for a medical institution collectively come under the category of business users</p></div>	<div>CUSTOMER LIMITATIONS<div>CL</div><p>Patients will have a constrained budget and might not be willing to spend for the necessary equipment to record ECG signals, while Medical professionals will be having the necessary equipment to collect data.</p><p>Patients might hold the test results whereas working professionals might hold equipment to conduct the test as well.Application must be device friendly.</p></div>	<div>AVAILABLE SOLUTIONS<div></div><p>In the available solutions: If you have symptoms of an arrhythmia, you should make an appointment with a cardiologist. You may want to see an electrophysiologist — a cardiologist who has additional specialized training in the diagnosis and treatment of heart rhythm disorders. After assessing your symptoms and performing a physical examination, the cardiologist may perform a variety of diagnostic tests to help confirm the presence of an arrhythmia and indicate its causes. Some tests that may be done to confirm the presence of an irregular heart rhythm include:</p><ul style="list-style-type: none">• and legs.• Ambulatory monitors, such as the Holter monitor.• Stress test: A test used to record arrhythmias that start or are worsened with exercise. This test also may be helpful to determine if there is underlying heart disease or coronary artery disease associated with an arrhythmia.• Echocardiogram: A type of ultrasound used to provide a view of the heart to determine if there is heart muscle or valve disease that may be causing an arrhythmia. This test may be performed at rest or with activity.</div>
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Focus on PR, tap into BE, understand RC	<div>PROBLEMS/PAINS<div>PR</div><p>Patients showing symptoms of Arrhythmia would face the difficulty of visiting the hospital each and every time. But the patients can now check their health status by directly providing their heartbeat signals to the web app which produces the output.</p></div>	<div>PROBLEM ROOT/CAUSE<div>PR</div><p>Users are reluctant to visit the doctor frequently due to other commitments. The natural method of frequent doctor visits is just not as effective as a web application.</p></div>	<div>BEHAVIOR<div>BE</div><p>Users expect their heart signals to be properly analyzed and visualized, in the background, without any complication and produce an output which gives the understanding of whether the user is suffering from arrhythmia or not.</p></div>
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Identify strong TR & EM	<div>TRIGGERS TO ACT<div>TR</div><p>The application is user friendly and the users can find out the problem by just feeding in the test results instead of waiting for a doctor’s appointment</p></div>	<div>YOUR SOLUTION<div>CL</div><p>An application which can predict the presence of arrhythmia by just feeding in the ECG tests. The user feeds in the test and the application predicts an accurate output for the following test results.</p></div>	<div>CHANNELS of BEHAVIOR<div>CH</div><p>Offline</p><p>As Patients use and share their experience, other patients are introduced to it. For Medical Institutions, a group of professionals are involved and through word-of-mouth, other Medical Institutions and individuals will become aware of this application.</p></div>
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	<div>EMOTIONS<div>EM</div><p>Before: User doesn’t have much time in his hands to visit the doctors frequently and thus would be annoyed</p><p>After: User feels much more comfortable with the website due to its ease of access and user-friendly features</p></div>		<div>Online</div> <p>The website can be accessed through modern-day browsers like Chrome, Safari, Firefox, etc.</p>