# Heart Rate Monitor- Tachycardia Detection

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**Introduction:**

Tachycardia is a condition that makes your heart beat in excess of 100 times each moment. There are three kinds of it:

**Supraventricular:**

This happens when the electrical signs in the organ's upper chambers failure to discharge and cause the pulse to accelerate. It beats so quick that it can't load up with blood before it contracts. That decreases blood stream to the remainder of your body.

**Ventricular:**

This is a quick pulse that begins in your heart's lower chambers. It happens when the electrical signs in these chambers fire the incorrect way. Once more, the heart thumps so quick that it can't load up with blood or siphon it through the remainder of your body.

**Sinus tachycardia:**

This happens when your heart's regular pacemaker conveys electrical signals quicker than ordinary. Your ticker beats quick, however it beats the manner in which it should.

**Statement of the Problem:**

With the trending and improper lifestyle in the modern world taking care of the body health status is decreasing drastically. With the growing technological trends in the Digital World. Modern Healthcare solutions require modern Healthcare Technology. Monitoring of the Heart rate among individuals helps in understanding the nature of the cardiac condition especially in the case of Tachycardia where the heartbeat per minute reaches over 99 Beats Per Second (BPS). Understanding the nature of the tachycardia condition helps individuals like Sports Persons and even working professional individuals during training for self-analysis and potential and day-to-day activity. This helps them to increase their potential and get an insight about their performance. In older age persons during their critical stages tracking their heart rhythm and beat can be helpful in initiating as an alarm and help the caretaker to support them during their critical stage through a telehealth care system.

**Methodology & Theoretical Orientation:**

Tachycardia is an abnormal heart condition in which the heart rate is above 99 (BPS) which indicates that the electrical signal fired up in the heart is increased much more than the optimal cardiac rate. Tachycardia is generally seen in state where the person is sudden anxiety, stress and during/after exercising or after undergoing vigorous physical activity. This condition when untreated may cause severe other conditions such as irregular heartbeats, difficulties in breathing, sudden cardiac arrest, stroke and fainting which may sometimes lead to death.

The Heart Rate Monitor is designed as a Combination of the Source for the input of the circuit, which is the Heart rate of the individual and an Alarm Circuit. This source is obtained with the help of a Heart rate sensor. The circuit includes the integration of timer circuit, clock circuit, heart rate sensor, buzzer circuit and Display Segment. The timer circuit is installed in such a manner that each period when the heart rate sensor senses the heart beat it would be displayed in the LED-segment. Using the principle of transmission and reception the heart rate sensor detects the pulse of the person which is optimal heart rate of the individual. Each time when a pulse is detected with the help of the Sensor, it is recorded and displayed in the Display Segment. Once the count reaches above 99 (BPS) the alarm circuit is Triggered and ultimately the tachycardia condition is identified, and it is stated to the user and to the concerned caretaker in far distance even through a telecare system.

**Conclusion & Significance:**

With the Challenge for Quality healthcare among old age people and medical trends in sports. Heart Rate Monitor tends to provide the perfect convenient healthcare technology to identify one's cardiac count rate and identify the abnormal elevated heart rate. With the use of simple circuits and Integrated chips which is also proved to be easily remodeled in the future to extend the use of the prototype. This Monitor highlights the need for such easily portable and user-friendly healthcare tech to help the user at all cost.

Serum IL-33 levels detection by Enzyme Linked Immunosorbent Assay (ELISA) for each group.

IL-33 gene expression by Real-time Polymerase Chain Reaction (PCR) for each group.

Investigation of systemic vascular resistance and cardiac output.

Investigation of IL-10 expression as a marker of attenuated sepsis-induced multi-organ dysfunction.

Investigation of kidney, liver and pulmonary functions and CNS and haematological alterations.

Investigation of plasma biomarkers, i.e.: IL-6 Complete Blood Count with differential.

**Conclusion**

We hope that pro-inflammatory effects of IL-33 gene transfer via AAV as a vector in a CLP mouse model, will probably be efficient in activation of pro-inflammatory cytokines and reduction of immunosuppression-induced mortality. To achieve this, further investigations and more collaborations between cell biologists, immunologists, laboratory scientists, infectious diseases and internal medicine specialists are unquestionably needed.

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