

## Design of Demand Pacemaker Using an Embedded Controller

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**Abstract :** The project aims in designing an emergency pacemaker which is capable of giving shocks to a human heart which has stopped working suddenly. A pacemaker is a machine commonly used by cardiologists. This machine is used in order to shock a human's heart back into usage. The way the heart works is that there are small cells called pacemakers sending electrical pulses to cardiac muscles that tell the heart when to pump blood. When these electrical pulses stop, the heart stops beating. When this happens, a pacemaker is used to shock the heart muscles and the pacemakers back into action. The way this is achieved is by rubbing the two panels of the pacemaker together to create an adequate electrical current, and then the heart gets back to the normal state. The project aims in designing a system which is capable of continuously displaying the heart beat and blood pressure of a person on LCD. The concerned doctor gets the heart beat and also the blood pressure details continuously through the GSM Modem in the form of SMS alerts. In case of abnormal condition, the doctor sends message format regarding the amount of electric shock needed. Automatically the microcontroller gives the input to the pacemaker which in turn gives the shock to the patient. Heart beat monitor and display system is a portable and a best replacement for the old model stethoscope which is less efficient. The heart beat rate is calculated manually using stethoscope where the probability of error is high because the heart beat rate lies in the range of 70 to 90 per minute whose occurrence is less than 1 sec, so this device can be considered as a very good alternative instead of a stethoscope.

**Keywords :** missing R wave, PWM, demand pacemaker, heart

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