

CWSF 2017 - Regina, Saskatchewan



Siddharth Arora

Cardiac Pacemaker - A Life Saver

Challenge: Innovation

Category: Junior

Region: Prince Edward Island

City: Stratford, PE

School: Stonepark Intermediate School

Abstract: Cardiac Pacemaker is a small battery-operated device that helps the heart to beat in a regular rhythm & is truly a "life saver" in an estimated 200,000 Canadians, presently living with pacemakers. A novel approach to design a "biocompatible pacemaker in a microchip" is presented which will use our own body's glucose to power the pacemaker "never" requiring any battery replacements in future.

Biography

My name is Sidd Arora & I am a Grade 8 student from Stone park Intermediate School, PEI. My journey towards researching "Cardiac pacemakers" began when my grandfather underwent a minor surgery to get a pacemaker. I got intrigued by the fact that our heart can produce natural electric currents & also the fact that research had developed artificial pacemakers to synchronize our heart beats. I want to improve the pacemaker technology, by removing all the drawbacks of present Pacemaker. In the development of my project, I studied heart & its functions, pacemaker & its working and different arrhythmias besides some electronic circuits and chemistry. I was successfully able to simulate the generation of electrical impulse as that of a pacemaker & also created glucose biofuel cell in my experiment, which can produces about 5.2 V. With further research, I hope to create a biocompatible microchip, which will sense and pace heartbeat-deriving energy from our own body's glucose available in the blood. My advice to young scientists is to think about a project, which fascinates them & can also solve major world problems.

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