

CWSF 2013 - Lethbridge, Alberta



Nick Andersen

Smart Scope: An Electronic Stethoscope Integrated with Smartphones

Challenge: Innovation

Category: Senior

Region: Simcoe County

City: Meaford, ON

School: Pretty River Academy

Abstract: The purpose of this innovation was to create an affordable electronic stethoscope that integrates seamlessly with smartphones. The first design contained electromagnetic interference which disguised the heartbeat. To solve this problem an operational amplifier was added to increase the signal to noise ratio. The final \$35 design created a phonocardiogram comparable to \$350 professional stethoscopes, making it a much more affordable alternative.

Biography

I am currently completing grade 12 at Pretty River Academy in Ontario. I am passionate about math and physics. In the fall, I plan to attend the University of British Columbia to complete a degree in Electrical Engineering. Outside school, I am actively involved in many sports. In the summer, I enjoy playing soccer and biking. During the winter, I spend my time playing basketball, hockey (Assistant Captain) and competing competitively in snowboard cross (National Snowboard Cross, Big White, B.C.). The inspiration for my project came from my love of designing and building electrical schematics. Last year, I designed and built an electromagnetic pulse accelerator. This year, I decided to focus on creating an electronic stethoscope. Designing a circuit in theory is one thing, but the satisfaction from watching your design perform the task it was meant to accomplish is amazing. Since designing the circuit for the stethoscope, I have become interested in experimenting with the head of the stethoscope to see if performance could be enhanced. I think that the best advice for anyone involved in a science fair project would be to choose a project in which they are extremely interested. Don't give up, try everything.

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