Zane Frantzen

Passive Automated Diagnostic and Detection of Illness and Disease

Challenge: Health
Category: Senior
Region: Simcoe County
City: Collingwood, ON
School: Pretty River Academy

Abstract: A system has been created to passively and non-invasively monitor human vital signs. The information collected by the sensors onboard is transmitted via Bluetooth to an iOS app. There, the data is then analysed against previously collected vitals to determine if there is an anomaly. Further analysis using a self-learning recurrent network checks the data for the most probable illness based on vital sign changes.

Biography

I'm a student in Grade 11 at Pretty River Academy in Collingwood, Ontario. This year marks my third time at the Canada Wide Science Festival. I enjoy playing the guitar and piano, as well as participating in various sports such as skiing, golf, and soccer. My advice for other students planning to do a project is to realise the world's largest problems can be solved in the simplest ways, and it's just a matter of finding the solution. This is something which inspires me. Using this inspiration, the problem I found this year is that humans have been plagued virtually forever by illness and disease. More recently, with scientific leaps in technology and medicine, there are many illnesses and diseases which can be cured or treated if caught early. However, seven of the top ten causes of death in North America are still due to preventable or treatable illnesses and diseases. I figured that by using my knowledge in hardware and software development, I could tackle this problem and create a system which could diagnose people without much physical contact required from the user. Along with this, the process should be as easy as possible for the end user.

Awards	Value
Excellence Award - Senior - Silver Medal Sponsor: Youth Science Canada	
Dalhousie University Faculty of Science Entrance Scholarship Senior Silver Medallist - $2500 Entrance Scholarship Sponsor: Dalhousie University, Faculty of Science	$2 500
UBC Science (Vancouver) Entrance Award Senior Silver Medallist - $2000 Entrance Scholarship Sponsor: The University of British Columbia (Vancouver)	$2 000
University of Ottawa Entrance Scholarship Senior Silver Medallist - $2000 Entrance Scholarship Sponsor: University of Ottawa	$2 000
Western University Scholarship Silver Medallist - $2000 Entrance Scholarship Sponsor: Western University	$2 000
Total	$8 500