



**CALIFORNIA SCIENCE & ENGINEERING FAIR  
2018 PROJECT SUMMARY**

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| <b>Name(s)</b><br>Michelle M. Nazareth  | <b>Project Number</b><br><br>38219 |
| <b>Project Title</b><br>ASD Alert 2: A User Friendly Wireless App to Mitigate/Oncoming Autistic Episodes  |                                    |
| <b>Abstract</b><br><b>Objectives/Goals</b><br>The objective of this project was to program a mobile application that monitors biometrics of individuals with Autism Spectrum Disorder (ASD) by analyzing heart rate data, alerting caretaker, and playing music. The objective was also to make the device more practical and user friendly by using wireless technology.<br><b>Methods/Materials</b><br>This project used MIT App Inventor 2 with the Bluetooth LE library. It required a Bluetooth HR monitor and an android phone to run the application. I developed a program that automatically connects to a chosen Bluetooth monitor, reads, analyzes and graphs data, sends a text, and plays music. The user can customize information in the user interface.<br><b>Results</b><br>The app worked without issues for 11 out of 14 participants. For the participants that the app collected data on without issues, all aspects of the objective were met. The ASD Alert 2 app was able to store user inputs (child name, emergency information, heart rate sensor, music choice, and average heart rate). In addition, my app integrated user input, analyzed live heart rate data, compared to threshold, graphed the data, played and stopped music, and sent an alert in a timely manner.<br><b>Conclusions/Discussion</b><br>My app met my objective because it read and analyzed heart data based on user averages. It also graphed this data to provide a visual representation. My app played music and sent out a timely alert through a SMS text. The app I built has also been an improvement from last year's edition. Because it is wireless the app provides a practical entry into the real world and can be easily carried around. In addition, the app has more user entered choices than my device last year. |                                    |
| <b>Summary Statement</b><br>I created a wireless app that is able to detect autistic episodes by tracking heart rate, analyzing the data, and using user entered information.   |                                    |
| <b>Help Received</b><br>Ms. Cristie Kirlin from Kirby School was my project advisor. I worked with Mr. Williams to understand the basics of code in my experiment.  |                                    |