



**CALIFORNIA STATE SCIENCE FAIR
2017 PROJECT SUMMARY**

Name(s) Ruchir Baronia	Project Number S0801
Project Title Rescuer: Emergency Mobile App with Voice Recognition, Volume Key Pattern, Location SMS Reciprocation, & Push-Aid Systems	
Objectives/Goals To construct an efficient mobile application that can send panic messages with the user's location in the case of an emergency. It should implement the following four features: <ol style="list-style-type: none">1. Voice Recognition: Rescuer should send out emergency messages with a geocoded location link by recognizing the user's spoken keyphrase.2. Volume Key Pattern: Rescuer should send out emergency messages with a geocoded location link when a user presses the device's volume buttons in a custom pattern.3. Location SMS Reciprocation: When another qualified contact sends a specific text message to the Rescuer equipped device, Rescuer should detect the keyword trigger and return the device location.4. Push-Aid: Rescuer should implement a flexible layout fragment that can be accessed via the phone's home screen as a widget to send emergency messages.	
Abstract To develop Rescuer, I first coded the background Java processes. Here I utilized the CMUsphinx voice recognition library for unique 24/7 recognition and multithreaded my application for optimal CPU usage. After building the brains of the app, I moved on to perfecting the user interface using XML and following Google's Material Design Guidelines. A finished product was created only after testing the application on over 100 emulated devices.	
Methods/Materials To develop Rescuer, I first coded the background Java processes. Here I utilized the CMUsphinx voice recognition library for unique 24/7 recognition and multithreaded my application for optimal CPU usage. After building the brains of the app, I moved on to perfecting the user interface using XML and following Google's Material Design Guidelines. A finished product was created only after testing the application on over 100 emulated devices.	
Results Rescuer not only gathers the most accurate location, but is also memory (0% crash rate), CPU (<30% usage), and battery (<5% per charge) efficient. Response time is instantaneous. Finally, Rescuer does not require access to Wi-Fi or Mobile Data, making it universally available.	
Conclusions/Discussion I have developed a fully functional emergency mobile application that can reach out to custom emergency contacts in a crisis. No mobile app has ever utilized 24/7 voice recognition, background volume button detection, or continuous SMS recognition as tools for signalling for help in an emergency.	
Summary Statement I've developed an emergency mobile app that can send panic texts with location when the user says his/her voice recognition keyphrase, presses the device's volume buttons in a pattern, receives a specific text, or pushes a homescreen widget.	
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