# Developing Mobile Algorithms to Detect Seizures and Falls

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This science investigation is aimed at developing smart phone algorithms for automated detection of seizures and falls. The product of this investigation is the Seizario app, which utilizes these algorithms as well as other features to efficiently detect and alert others when a seizure or fall occurs by analyzing and different parameters involved with accelerometer readings computed by the phone. Seizario offers two main features; automatic detection of several emergency scenarios (seizures/falls), and easy and immediate communication of critical information to family members and caregivers. Seizario uses an accelerometer-based learning algorithm to automatically detect grand-mal seizures and harmful falls. Warning and alert messages are triggered when potentially dangerous situations are detected. Second, immediate emergency messages can be sent at will to pre-identified family members or caregivers, with activity, time and location information. Using Seizario regularly should reduce the effect of seizures and falls by reducing the response delay due to timely alert notifications. In addition, it can present long-term detailed logs containing crucial information to caregivers and doctors for continuous behavioral analysis, for improved treatment outcomes.

**Awards Won:**

Second Award of $2,000

Oracle Academy: Award of $5,000 for outstanding project in the systems software category.