

# **An Alerting Device to Prevent Death Risk in Dental Treatment**

**Kanticha Hothai, Thanadon Pitakwarin**

Princess Chulabhorn's College Chonburi,695,Banbuang-Kleang Rd, Nongchak, Banbuang,  
Chonburi, Thailand, Postcode 20170.  
haruhifujioka@hotmail.co.th

**Yupaporn Premkamol**

Princess Chulabhorn's College Chonburi,695,Banbuang-Kleang Rd, Nongchak, Banbuang,  
Chonburi, Thailand, Postcode 20170.  
Koo\_took@hotmail.com

## **Abstract**

This project aims to develop “An Alerting Device to Prevent Death Risk in Dental Treatment” to reduce the risk of death during dental treatment. Our alerting device is a device that can analyze the stress. Stress can cause to be shocked by increasing each heart rate and GSR value. GSR value shows sweat secretion plays a major role for thermoregulation and sensory discrimination. It can change skin conductance in hand and foot ; the higher the arousal, the higher the skin conductance. It can mean being in stress. Only each Heart Rate value or GSR value cannot exactly show the levels of stress, can cause by congenital disease so both of them are necessary to analyze the stress value. The process is receiving GSR value and Heart Rate sensor then we can analyze the values by using microcontroller and coding to program the values and show by buzzer to present the levels of the risk of death and an effect to be shocked. Each value is arranged by each age because of the Heart Rate value's differences between each age, so the values are separated into 2 levels by each age's Heart Rate. We have already studied in 50 representative samples to use the “Alerting device for prevention of death risk in dental treatment” while the samples are treated by a stress that can effect to be shock and has death risk. The program is written by an analysis equation between 2 values to stress value so the dentist could solve the problems as fast as they could. It can reduce the risk of death causes by the stress because of the alert in the moment they have too much stress.

**Keywords** : Microcontroller, Heart Rate sensor (Heart rate sensor), Galvanic skin response (GSR sensor)

## **Acknowledgements**

An Alerting Device to Prevent Death Risk in Dental Treatment wouldn't be completed without the helping from our advisor, Mrs.Yupaporn Premkamol. She always gives us many advices and even supporting us in this project. We also receive help from Mrs.Thanaporn Pitakwarin, the dentist from Pattaya Memorail hospital and T&P dental clinic. She also gives us many advices and ways to improve the project to be better. Finally, we immensely grateful to all of supporters for giving and helping us many things and we couldn't make it through without them.

## **Biographies**

Kanticha Hothai is a student at Princess Chulabhorn Science High School Chonburi in Chonburi, Thailand. I have entered TJSIF 2016 (Thailand-Japan Science ICT Fair 2016) as an MC at Princess Chulabhorn's Science High School Chonburi, Thailand, been participant in TJSSF 2018 (Thailand-Japan Science Fair 2018), been a participant in NSC2018 at Burapha University, been an exchanged student in Cooperation between Princess Chulabhorn's Science High School Chonburi and Ichikawa Gakuen Junior and Senior High School.

Thanadon Pitakwarin is a student at Princess Chulabhorn Science High School Chonburi in Chonburi, Thailand. I have entered TJSIF 2016 (Thailand-Japan Science ICT Fair 2016) as an MC at Princess Chulabhorn's Science High School Chonburi, Thailand, been participant in TJSSF 2018 (Thailand-Japan Science Fair 2018), been a participant in NSC2018 at Burapha University, been an exchanged student in Cooperation between Princess Chulabhorn's Science High School Chonburi and Ichikawa Gakuen Junior and Senior High School.