

Smoking and Conversation Detection from Respiration Signal

Abstract

Behavioral scientists are often interested to find relationship between stress and different contexts. Two such related contexts are smoking and having conversations. For example, people may smoke due to mental stress. Again, conversation can also affect the stress level. We, in this work, aim to infer these contexts. We develop a conversation and smoking detection module as a part of a stress inferencing application implemented in G-1 which is an Android OS based cell phone.

Speaking and smoking has significant effect on the respiration. We use a chest band where Respiratory Inductive Plethysmograph (RIP) sensor is placed to capture the respiration signal. RIP sensors actually measure the lung volume. We collect respiration signal from different subjects in natural environment. The features used for classification are based on the inhalation, exhalation period and the ratio between these two. Our algorithm is able to classify speaking, smoking and quiet breathing using those features.