Creating a Web Application to Analyze Biofeedback to Convey Emotion

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ABSTRACT

• The response of the interviewee, such as his or her emotional state, plays an important role on the quality of the collected requirements and helps the interviewer respond accordingly.
• Creating a web app allows interviewers to see the statistics gathered from the E4 wristband and the emotion that the interviewee is experiencing in real-time.
• Biofeedback information is being extracted from the E4 wristband using a server-to-client console method and supervised machine learning techniques are being used to display emotion.

METHODS

Web Application:
• Use ASP.NET core framework to build app
• Use server-to-client console method
• Program with C#, Razor, MVC, HTML, & JS
• Use of Chart.js package to display data from watch

Machine Learning:
• Retrieve and clean biofeedback data from the E4 wristband
• Collect and enter data from image surveys
• Use logistic regression to average the heart beats with the other biofeedback data
• Build ANN using Python and Tensorflow

BACKGROUND

• Requirements elicitation interviews are the most commonly used technique to gather requirements. This is a crucial and difficult activity on which the quality of software depends on.
• Emotions such as stress help determine whether or not an interview is successful or not by dictating the level of attention and engagement of the interviewee. Emotions are not always easy to identify by observation. However, they can be detected by looking at various vitals (e.g. rate of blood flow, heart rate, and temperature) and voice parameters.

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