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Open Source Biometric Research Platform

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Abstract

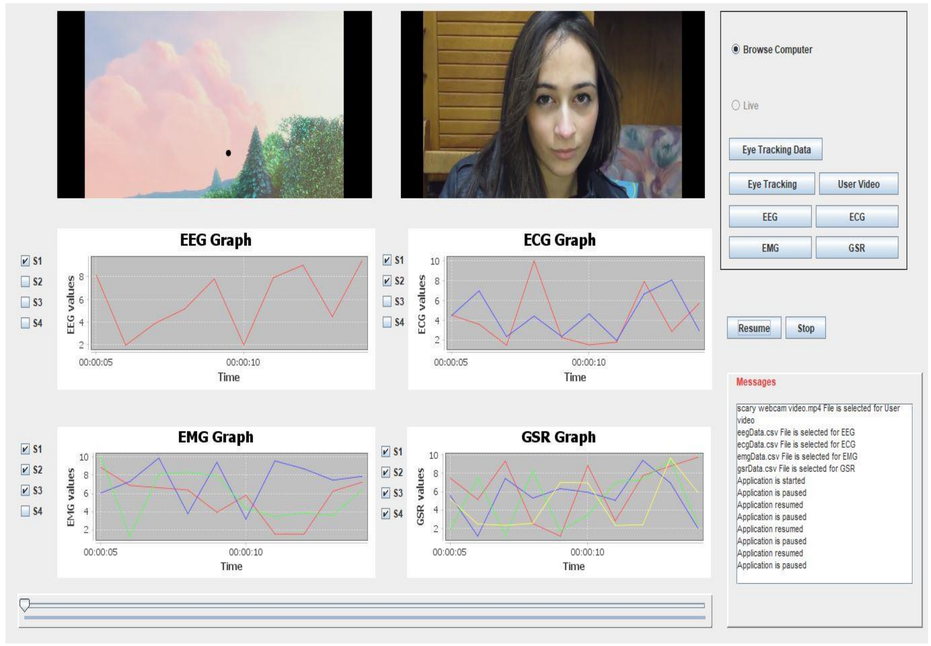
Open Source Biometric Research Platform (OSBP) is a desktop-based application that is used primarily by the researchers for visualization of different biometric signals/parameters for a given user. It acts like a platform that is helpful for researchers to visualize & study biometric signals such as Eye Tracking, Galvanic Skin Response, EEG, EMG, ECG. The biometric signals are synchronized with the video and screen recording section of the application.

Summary

Problem Statement- Develop a Desktop application that can collect, combine (synchronize), and visualize video and several biometric signals such as Eye Tracking, Galvanic Skin Response, EEG, EMG, ECG.

Target Audience- Biometric Data Researchers

Need for Open Source Biometric Research Platform- The applications present in the market are not open source and they cost so much to purchase. Hence ours will be an alternative to that and will enable more accessibility.

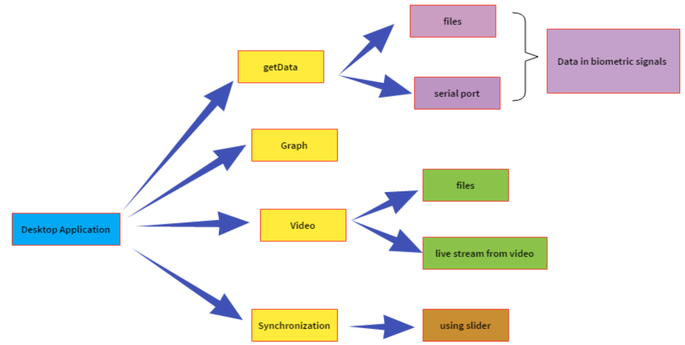


Technologies Used

- Java
- Swing
- AWT
- JFreeChart
- VLCJ

Features

- Track the biometric signals such as ECG, EMG, GSR and EEG.
- Perform the eye tracking on the user video to show where is the point of focus for the user.
- Combine all these input signals and display it on a desktop dashboard.
- Synchronize all the input signals based on a uniform timestamp and enable seeking further and backward.



Roadmap

- Integrate with hardware sensors and process real-time data
- Eye tracking to be done using point of gaze.
- Mobile Application

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