

Title: FACIAL MICROEXPRESSIONS AND THE AUTONOMIC NERVOUS SYSTEM: ESTABLISHING THE LINK

Author(s): Sonkar, Parul

Supervisor(s): Venkatesh, K S
Bhushan, Braj

Keyword(s): Micrexpression, Eye Tracker
Biofeedback, Physiological Response

Subject(s): Image Processing

Abstract: An intriguing relationship between physiological indicators and psychological states underlies the human emotional process. Although of great interest, it can be difficult to fully comprehend the various ways in which human emotional states present themselves. Numerous of these manifestations have been linked to physiological factors like blood flow rate, heart rate, and galvanic skin resistance. These factors include involuntary parameters like saccade, eye blinks, fixations, view gaze points, pupillary dilation, and macro and micro facial expressions, which are primarily caused by voluntary muscle movements. The goal of this effort is to create a novel experimental setup capable of synchronising a huge number of extremely disparate characteristics and collecting them coherently for analysis. It should be noted that some of these responses may arrive later than expected compared to those from other people. Certain responses require advanced image processing methods to be assessed since they are visual, besides being extremely subtle. Some of them, like heart rate, and so on, are only temporal functions that must be assessed in their own way. A collective conclusion should be drawn based on the simultaneous correlation of all of these biological reactions.



FIGURE 3.2: a) Go Pro 7 Black camera front, b) Go Pro 7 Black back

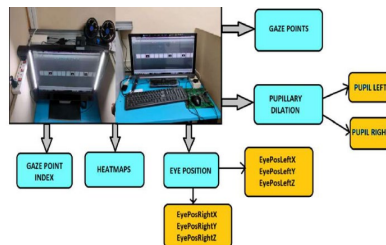


FIGURE 3.4: Block Diagram of Eye Tracker



FIGURE 3.10: Heatmaps

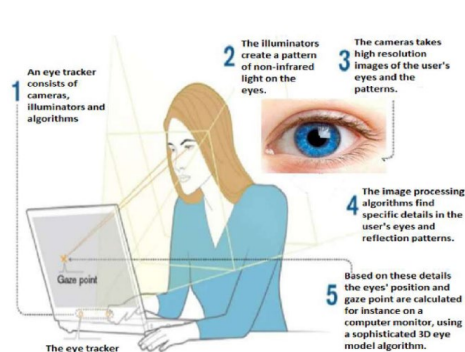


FIGURE 3.11: Working of Eye Tracker



FIGURE 3.16: NeXus 10 Biofeedback device ports



FIGURE 3.17: NeXus 10 Biofeedback device ports