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(54) Title: MULTIPURPOSE CONTROLLER FOR ELECTRONIC DEVICES, FACIAL EXPRESSIONS MANAGEMENT AND DROWSINESS DETECTION

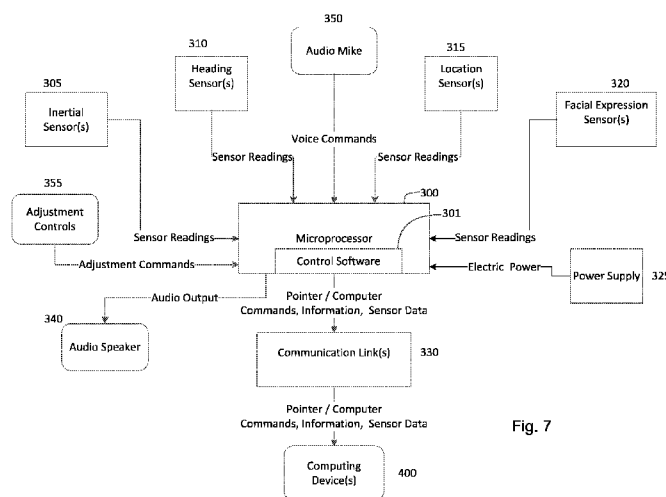
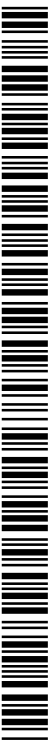


Fig. 7

(57) Abstract: A hands-free controller, a facial expression management system, a drowsiness detection system and methods for using them are disclosed. The controller monitors facial expressions of the user, monitors motions of the user's body, generates commands for an electronic device based on the monitored facial expressions and body motions, and communicates the commands to the electronic device. Monitoring facial expressions can include sensing facial muscle motions using facial expression sensors. Monitoring user body motions can include sensing user head motions. Facial expression management can include monitoring user facial expressions, storing monitored expressions, and communicating monitored expressions to an electronic device. Drowsiness detection can include monitoring eye opening of the user, generating an alert when drowsiness is detected, monitoring proper usage of the device, and generating a warning when improper usage is detected.



INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER IPC(8) - G08B 21/06 (2012.01) USPC - 340/573.1 According to International Patent Classification (IPC) or to both national classification and IPC		
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C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 7,515,054 B2 (TORCH) 07 April 2009 (07.04.2009) entire document	1, 2, 6-8, 11-22, 26-28, 31-41
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Y		3-5, 9, 10, 23-25, 29, 30
Y	US 5,469,143 A (COOPER) 21 November 1995 (21.11.1995) entire document	3-5, 9, 10, 23-25, 29, 30
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