

Sensing and Measurement of Frustration on Mobile Devices

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With the mounting number of individuals using smartphones, the devices have become not only more widely recognized but are in common use. The purpose of this project was to utilize this familiarity in affective research. Current methods for researching and modeling affect require peripheral devices, many of which are uncomfortable for or disconcerting to the user. To more realistically identify indicators of certain affective states, we have developed an application, **frustDroid**. The application uses a basic matching game that is designed to frustrate the user after several rounds of game play. The intent of this application is not only to minimally frustrate the user, but to also measure how the user responds at varying levels of stress. The application utilizes a number of sensors located in a standard device running the Android operating system, including the accelerometer and pressure monitor. At time of release, we have not begun user studies, however we intend to begin them soon. Further development plans include incorporating additional sensors, including front and rear facing cameras. Long-term research plans include the development of a sensor-based model to identify and potentially manage user frustration. Such a mechanism could be deployed in applications such as games and intelligent tutoring systems to enhance the user experience.