

# BeMonitored

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## FIGURE 1

BeMonitored is able to monitor physiological and behavioral (face motion) response while a subject is receiving audio and visual stimulus (e.g. videos with spiders). In the right side it can be observed that the head motion increases while the spider video is being presented.

Psychological studies involve the study of individual's emotions and reactions, therefore it is of the utmost importance that researchers can recreate, as accurately as possible, real life conditions. This requirement is not always possible. Phobias are a common anxiety disorder. Phobia consists in an irrational, persistent and intense fear towards a specific object, activity or situation. Given that phobias are rather context specific, their study is the ideal candidate to assess the feasibility of using a mobile and wearable device for obtaining physiological and behavioral data. BeMonitored is a smartphone based solution to support more ecological valid monitoring of psychological experiments. The application (Fig. 1) allows the delivery of customizable specific context dependent audio-visual stimuli. Also, it captures the subject's behavior, physiology and environment, by the use of external resources connected via Bluetooth or smartphone own resources. The system provides basic session management, it stores participant's demographics, and allows offline review of session data.

The selected case study was spider phobia. The smartphone camera allowed to quantify the face motion (Fig.1). We showed that the spider phobics differed from control participants in face motion. Moreover, we also found out that there were heart rate differences between spider and neutral stimuli by phobic participants.

The presented system proved to be a viable system that may be further extended to provide other physiological and behavioral parameters. This study was focused on spider phobia, but the BeMonitored system could be applied in other anxiety-related assessment and monitoring. The presented results emphasize the usefulness of smartphones on phobia monitoring. Considering its intrinsic characteristics, smartphones may constitute the natural evolution from the lab to more realistic contexts.

