

Mood ToolKit (TigerAware): A Customizable Mobile Survey Creation and Data Analytics System for Data-driven Emotion, Clinical, and Field Studies

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Mood Toolkit, a top-five finish in the 2016 **Mood Challenge competition**, sponsored by the Robert Wood Johnson Foundation.

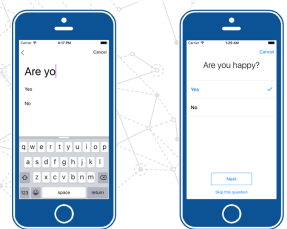
Introduction

With mobile devices becoming pervasive in everyday life, the ability to harness them to power data analysis and foster insight is becoming crucial. Mood ToolKit (TigerAware) provides a framework for generating on-the-fly survey assessments and sensor data collection and deploying them on iOS and Android mobile phones in seconds.

Platform

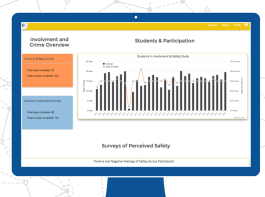
Mobile Devices

- Instant availability of questions created on web dashboard.
- Scheduled and random survey reminders.
- Access to device data, geo-location, activity data, wearable sensor data, and third party apps such as Apple iHealth.



Survey Engine

- Easily create questionnaires, surveys, and assessments.
- Add participants and send notifications.
- Aggregate survey progress and compliance.



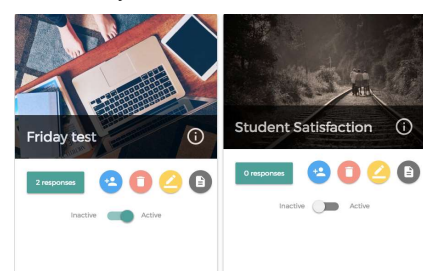
Demo of Mood ToolKit (TigerAware) Dashboard

Workflow

Survey Overview

①

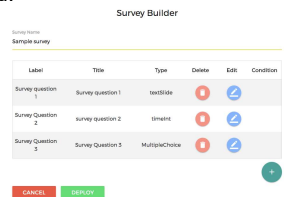
Survey administrators first log onto the the web dashboard and can access an overview of their current surveys.



Survey Creation

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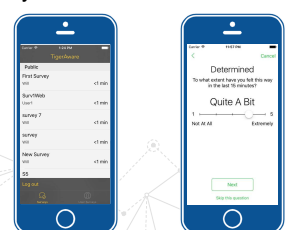
Survey administrators then create a new survey using the survey builder. Question types such as yes-no, multiple choice, free text, time/date interval, image, and sound are supported.



Taking Surveys

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Users will see their surveys appear in their feed where they can begin taking the survey voluntarily or after a scheduled notification.

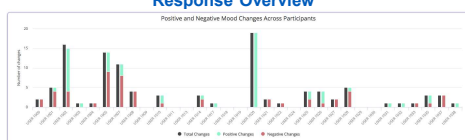


Data Analysis

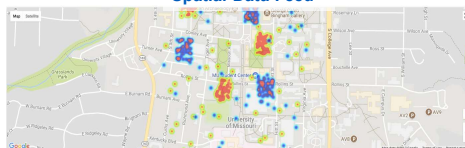
The dashboard will auto populate data as responses are submitted. Researchers can query, summarize, and analyze data on the dashboard in real time, and export responses to a csv for additional analysis.

- A. Representation of free text, time series, multiple choice, yes-no, location-based data, and sensor data.
- B. Support for analysis such as machine learning and statistical tests.
- C. CSV export tools to allow for further analysis using different systems.

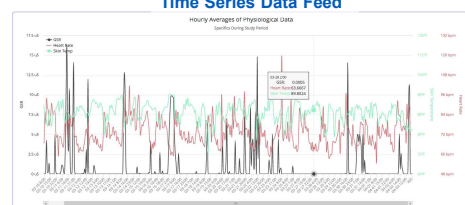
Response Overview



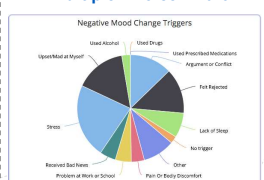
Spatial Data Feed



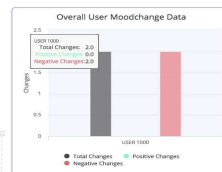
Time Series Data Feed



Multiple Choice Chart



Participant Response Breakdown



Use Cases

Mood ToolKit (TigerAware) is under active development for use in many different research contexts, including the following:

- **Alcohol craving/impact studies:** Tracking alcohol consumption and craving during everyday life and/or driving.
- **Voice-based home assistant:** Integration with Google Home and other voice based smart devices for healthy coping at home.
- **Diabetes research:** Allowing doctors to create assessments and provide patients with immediate feedback.
- **Campus climate studies:** Allowing campus climate researchers to quickly deploy surveys and make institutional changes.
- **Wildlife conservation studies:** Allowing Missouri Department of Conservation staffs to easily collect wildlife data and images, such as fish, deer, and birds data, and usage data of state parks and conservation lands and resources.

Distributed and Intelligent Computing Lab, EECS Dept.
<http://dlsrv1.rnet.missouri.edu>

- Extensive experiences in machine learning, deep learning, big data analytics, mobile computing, etc.
- 8 ongoing research projects supported by NIH, NSF, MU, the state, and the industry
- 20 graduate and undergraduate researchers
- Developed many state-of-the-art methods, software tools, and mobile systems for various mobile data collection, data analysis, and machine learning applications.