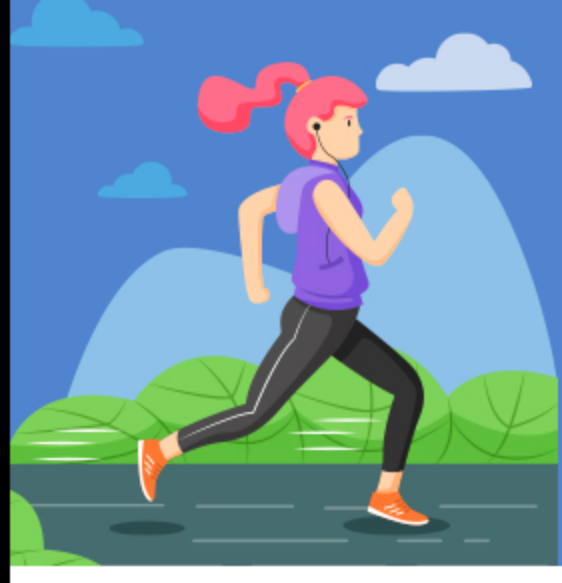
My Circadian Clock



MyCircadianClock

Industry:

Healthcare & Wellness

Location:

California, USA

> Satchin Panda, PhD, is a full professor in the Regulatory Biology Department at the Salk Institute for Biological Studies. He is interested in understanding the molecular mechanisms of the biological clock. The biological clock, or circadian oscillator, in most organisms coordinates behavior and physiology with the natural light-dark and feeding cycles.

My Circadian Clock

SATCHIDANANDA PANDA

Professor

Regulatory Biology Laboratory

Overview

Life on earth has evolved in the context of a 24-hour periodicity in environmental conditions and a dependent daily rhythm in food availability and predator avoidance. Consequently, organisms have evolved endogenous circadian oscillators that allow them to anticipate and prepare for activity, sleep, and food intake at a specific time of the day. Both food ingestion and fasting can alter the metabolic state. Therefore, molecular responses to feeding and fasting exhibit temporal dynamics with a 24 h period.

To monitor such daily temporal patterns Dr. Satchin Panda and his colleagues at the Salk Institute in La Jolla, California, have created a new smartphone app, MyCircadianClock, that allows users to track their daily health behaviors, including eating, sleeping, moving, and taking supplements and medications. The data gathered from the app is shared with researchers who are investigating how daily timing of these behaviors influences health and wellbeing. Users of the app gain personalized insights into their body's daily rhythms. The purpose of the app is to pilot a way to objectively study the effects of timing food intake in humans.

With enough subjects, Dr. Satchin hopes to test the benefits of time-restricted feeding under different conditions of sleep, activity, and disease.In addition to cutting out some bad habits, he hypothesized that a timed feeding schedule could prevent "metabolic jet lag"-when differences in day-to-day or weekday/weekend meal times cause metabolic organs to become out of sync with the body's overall circadian rhythms.

Goals/Objective

The app is developed on both Android and iOS keeping in mind to track and save users daily food intake, sleep, exercise, blood pressure & body mass index in order to help the researchers in their respective research area.

Mobile app

- The app would be available on both Android & iOS platforms. Participants would be able to download the app from respective app stores to use it.
- The Participants would be able to log their activities like daily food intake, sleep, exercise and health data.
- The participants would be able to share the food images with the research coordinators to track the participant's day to day activities.
- The app is integrated with Google Fit & Apple HealthKit to collect the steps count, cycled distance, heart rate, walking & sleep data with the consent from the participants.
- The app is enabled with offline mode to log & sync the data where the internet is not available.
- The participants would be able to participate in automatic scheduled surveys as set by the researchers. The app collects the answers of the survey and share it with the researchers.
- The Participant would be able to receive automatic Push notifications on the app based on the trigger & thresholds set by the researchers.
- The app provides a custom Feedogram chart for the participants to view their daily activities like food, sleep, exercise, health and steps count data.

Co-ordinator portal

- Researchers can get the insight of each data collected from various participants.
- Researchers can schedule daily surveys and notification send to the participants as per their data logging pattern.

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Key Challenges

- App was standalone - no communication with the server.
- No portal for researchers to view the data.
- Lack of Data security.
- Absence of Custom chart.
- Poor User Experience.
- Low Performance.

Solution we have provided

- Usage of HIPAA compliant Infrastructure.
- Backend API.
- Co-ordinat or Portal to view Logged Data.
- Enhanced App Performance.
- Secure Data transmission.
- Syncing data with server upon login.
- Offline mode data save.
- Google fit Integration for Android.
- Apple health kit Integration for iOS.
- Plotting of custom charts.
- Storing images and other files securely to cloud storage

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