The Open INcentive Kit (OINK): Standardizing the Generation, Comparison, and Deployment of Incentive Systems

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ACM ICTDX, Jan 7th, 2019
Ahmedabad, India
Application: Sensing AC grid reliability in Ghana

Achimota, Accra, Ghana

https://www.youtube.com/watch?v=NzBGBXrwVYc
Let’s start putting together a deployment...

Challenge: Incentivize people for many things

- GridWatch
  - Install
  - Monthly
  - In-app Invite

- PowerWatch
  - Install
  - Monthly
  - Post-experiment collection

Accountability?  Audits?  Complicated execution?
Solution: Scripting?

• IT seems critical
• Lots of pieces are done for us...
  • Incentives transfer is already digital
  • Some behavior monitoring tools exist
  • Databases support logging of transactions
• Our incentive systems have common patterns
  • Something happens that someone gets an incentive for
What do other researchers do?

- Incentive systems influence participation and population
- 175 papers and abstracts from ACM DEV, CHI, and ICTD
- 215 papers from medical education journals [1]
- Sorted into:
  - No human subject
  - No mention
  - Some mention
  - Discussed

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Incentive schemes need to be modernized

Observations:
- Incentive schemes are critically important and under reported
- Incentive schemes are implemented ad-hoc
- Incentive schemes share patterns
- We depend on IT to implement complicated incentive systems

What if this wasn’t the case?
- Could we lower the barrier for running experiments with incentives?
- Could this enable better reporting in the literature?
The Open INcentive Kit (OINK)

We introduce the Open INcentive Kit, or (OINK), which we hypothesize could support and automate the design, deployment, and management of a broad range of incentive systems, both to facilitate the description and comparison of incentive systems in the literature, and to reduce their overhead while increasing their quality.
Vocabulary to describe incentive systems

- Experiment
- Identity
- Incentive System
  - Stimulus
  - Fraud
  - Payment
  - Alarm

  Incentive System
  - Stimulus
  - Fraud
  - Payment
  - Alarm
Software Structure

Stimuli

Alarm

Fraud Detection

Core

Payment

Stimuli

Core
App Invite

Stimuli (app invite) → Fraud Detection (max invites) → Core → Payment (Korba)

Stimuli (app invite) → Core → Stimuli (app invite)
A generalizable system

- OINK logic is shareable and reusable
- Functions as a Service are helpful
  - Short running functions in a cloud runtime
  - Don’t need to manage much...
  - Arbitrarily scalable
  - A number of popular commercial providers
Deployment management
What we are releasing today

• A application-specific implementation of OINK that supports our current experiment
• A solicitation for new incentive schemes
  • What key idioms are we missing?
  • Can we support your study?

https://openincentivekit.com/
Works in progress

• Open source project
  • Clear path for function contribution and incorporation
• Auto-generation UI
• Plain text generated descriptions
Closing thoughts

• OINK is the first work to generate scalable and auditable incentive systems
• The vocabulary we propose could help with reporting and comparing incentive systems in the literature
• OINK is designed for non-coders
• We are aiming for a community of users and contributors
Thanks!

OInK

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