

Implementation and Analysis of a Gamification Approach for User Integration into a Mobility Application via Crowdsourcing

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1.

Introduction

2.

Important Concepts

3.

Related Work

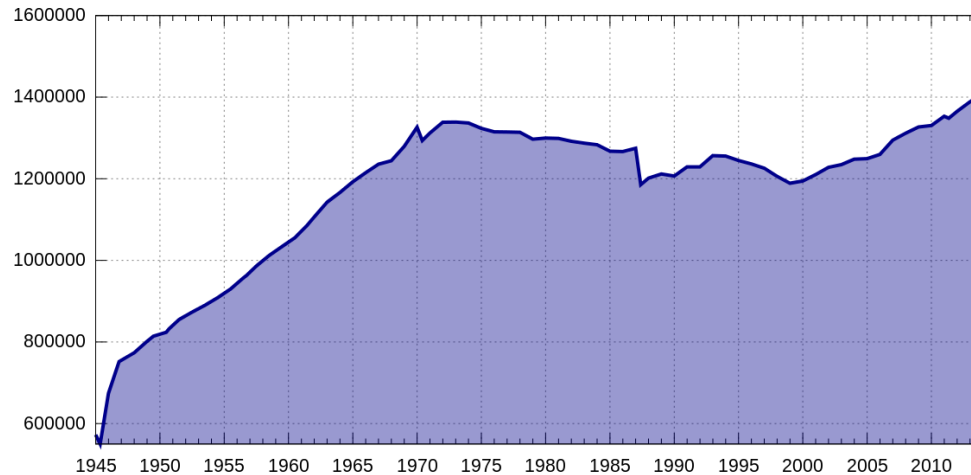
4.

Technologies

5.

App Development

Urbanization in Munich



- Public transport is overcrowded at business hours
- Not equally crowded over time
- Münchner Verkehrsgesellschaft (MVG) cannot provide enough means of transport
- Delays & cancellations as a result

Source: https://de.wikipedia.org/wiki/Einwohnerentwicklung_von_M%C3%BCnchen, <http://www.sueddeutsche.de/news/leben/bevoelkerung-un-zwei-drittel-der-menschheit-lebt-2050-in-staedten-dpa.urn-newsml-dpa-com-20090101-140710-99-08796>

Research Questions:

1. Would commuters change to less crowded means of transport?

2. How would information about cabins satisfy their needs?

3. Is it possible to make commuters provide the information?

Main Objectives:

1. Elaborate Theoretical Concepts

2. Implement Application based on Concepts

1.

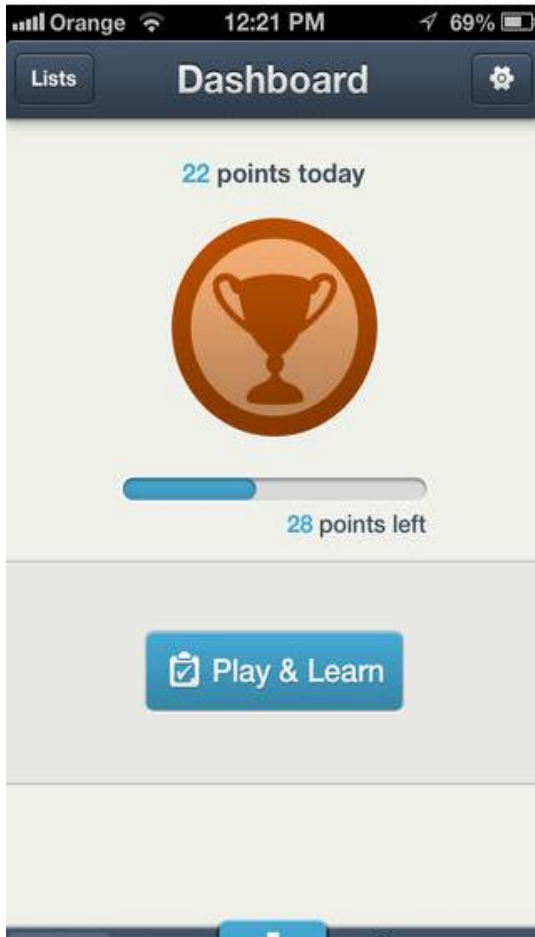
Elaborate Theoretical Concepts

General Concept

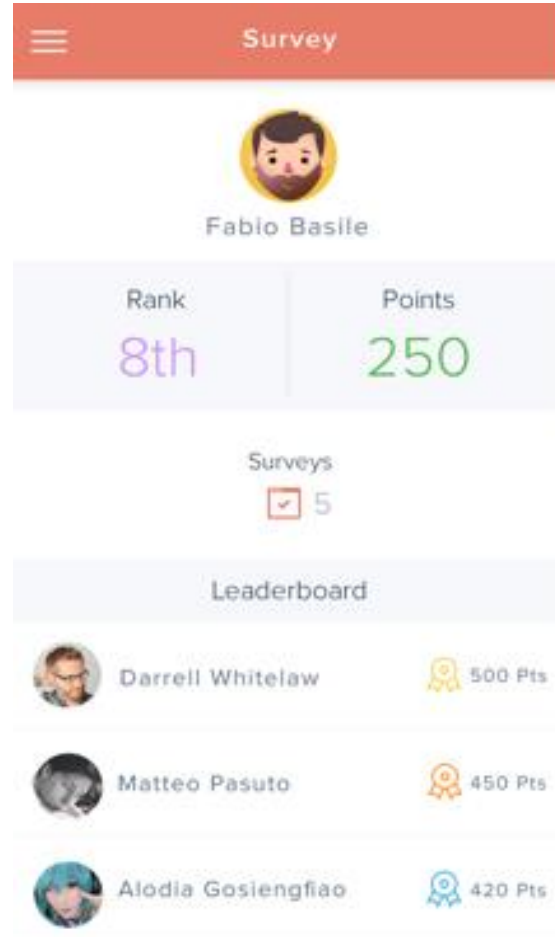
	Structural Gamification	Content Gamification
Basic Definition	Change structure around content	Add game elements
Common Implementation	Leaderboard	Add story and characters
How does it affect the application?	<ul style="list-style-type: none">• Competitive• Fun factor	<ul style="list-style-type: none">• Fun factor• Curiosity

Potential Elements

Medals



Leaderboard



Avatar



Sources: <https://contractiq.com/Entertainment-App-Development-4118-from-Freezepro-software#prettyPhoto/0/>,
<https://dribbble.com/shots/2459527-Leaderboard>, <http://www.acar.ch/solutions/Pages/Mobile-App-Quiz-Manager.aspx>

General Concept

- Originates from the economical expression Outsourcing
- Depicts process of anonymous people providing information on the web
- Crowdsourcing can lead to knowledge that is difficult to acquire
- Target group is unknown



Source: <http://blog.optimizationgroup.com/crowdsourcing-vs-co-creation-whats-the-difference>

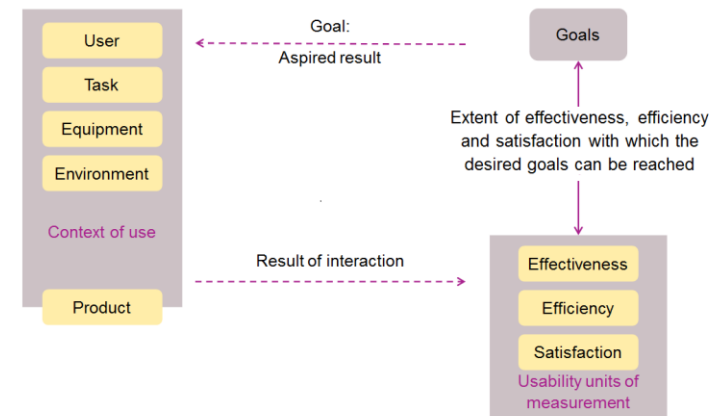
Usability – Units of Measurement

- Is it possible to solve the problem with this product?
- How much effort do I have to put into the product in order to solve the task?
- How satisfied am I with the result that I get from the product?

User Experience

... comprises all perceptions and reactions, which:

- the product evokes before actually using it
- result from the actual or expected use of the product
- affect the client after using the product



Source: <http://www.digital-management.at/din-en-iso-9241-11/>

Connected Mobility

Easy to use:

- Few pages & touches

Crowdsourcing:

- Outline contribution capability

Gamification:

- Encourage continuously
- No interference with intuitiveness

Competitors	Easy to use	Crowdsourcing	Gamification
Moovel	✘		
Moovit		✘	✘
Waze	✘	✘	✘

2.

Implement Application based on Concepts

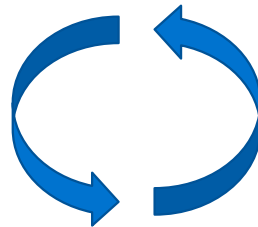
Planning

- Define Target Group
- Choose Technologies
- Define Specifications



Groundwork

- Draw sketches
- Design Mockups
- Develop Prototype



Gather Feedback & Apply it



Final Implementation

- Implement Application
- Have in Mind the Elaborated Concepts

Hybrid App

- Good performance
- Almost native user interface
- High Code Portability
- Reduced development time and cost

Features	Native Apps	Mobile Web App	Hybrid App
Performance	High	Low	Medium
Cross Platform Support	No	Yes	Yes
User Interface	Good	Average	Good
Development Time & Cost	High	Low	Medium
Code Portability	Low	High	High

Advantages

- Provides logic
- Definition for access rules
- Quick & easy integration
- Data synchronization

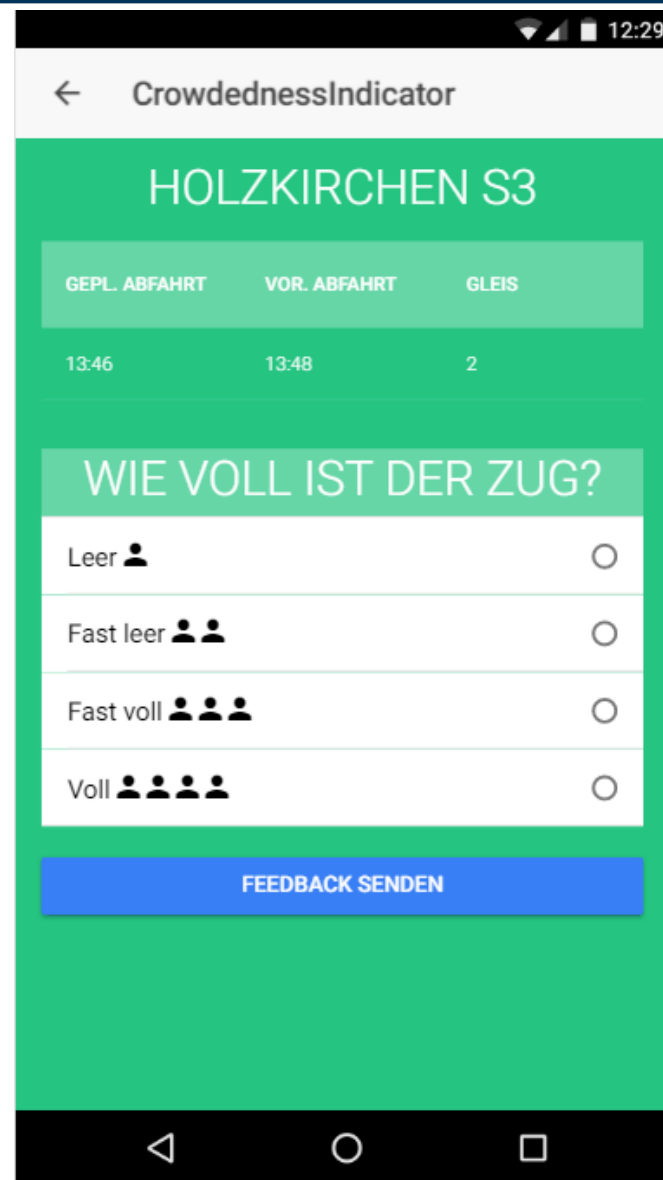
Disadvantages

- Predefined logic
- Certain number of calls per second
- Superficial access rules
- Data is stored externally



Source: <https://mitechnews.com/connected-tech/mobile-monday-detroit-sept-12-mobile-backend-service/>

Live Demo



CrowdednessIndicator

ABFAHRTSTAFEL LEADERBOARD

17:26	Holzkirchen	N/A
17:35	Mammendorf	

KARTE AN/AUS

Karte Satellit Unterhaching X

Sie sind hier X

Google Kartendaten Nutzungsbedingungen

CrowdednessIndicator

ABFAHRTSTAFEL LEADERBOARD

RANKING

#	USERNAME	P	VOTES
1	SAFARI7	1050	21
2	ROBIN1REIKIRCH	800	16
3	R.OTTO94	600	12
4	SCHNEYZA	500	10
5	ITERATEC	350	7
6	RABE	200	4

CrowdednessIndicator

ABFAHRTSTAFEL LEADERBOARD

MARIENPLATZ

ZEIT	ZIEL	FÜLLGRAD
15:06	Holzkirchen	
15:08	Tützing	N/A
15:10	Wolfratshausen	
15:11	Aying	
15:12	München Ost	N/A
15:15	Mammendorf	
15:18	Altendorf	N/A

Sie haben erfolgreich Ihren Eindruck abgegeben. Als kleine Belohnung gibt es 50 Punkte auf unserem Leaderboard!

1. Would commuters change to less crowded means of transport?

- Depending on time trade-off
- Tolerable waiting time ~15 mins

2. How would information about cabins satisfy their needs?

- Information goes into detail
- Users tend to ignore it
- Useful, if information is accurate and reliable

3. Is it possible to make commuters provide the information?

- Contribution more likely if previous submissions exist
- Gamification feature necessary
- Attraction through gamification feature differed

Thank you for your attention!

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KOMPETENZ,
DIE ENTLASTET