BUTTER IT! - A COLLOCATED GAME

IDA HÄGGLUND, STEVEN TENG, JAMES WELLENCE

CHALMERS UNIVERSITY OF TECHNOLOGY

IDAHA@STUDENT.CHALMERS.SE, STEVENT@STUDENT.CHALMERS.SE, WELLENCE@STUDENT.CHALMERS.SE

ABSTRACT

Most apps for mobile devices are designed to be used in isolation. Even apps for communication, like chat or social networks, still isolate users from others who are physically present in the same room. We designed and programmed *Butter It!*, a multiplayer game for iOS that encourages people to interact with collocated individuals via their mobile phones. Players race to butter the most pieces of toast on their phones, while an iPad serves as the virtual stick of butter that players scoop. Players enjoyed the competition and would interact with each other in ways we had not imagined, like physically pushing each other to impede each other's progress, and future versions of this app would further encourage this type of local interaction.

INTRODUCTION

In Lundgren and Torgersson´s paper, Bursting the Mobile Bubble, the authors describe a common situation where multiple people in the same room are socially isolated because everyone's attention is focused on their own mobile phones (2013). They argue for the further development of mobile apps that promote interaction between these collocated individuals. One of the apps they showcase in their paper is a mobile adaptation of the popular board game Settlers of Catan. In this version, players use a combination of a shared tablet and smart phones to respectively display public and private information. This creates an interesting dynamic where most of the game is publicly displayed, but some key components, like players' cards, are hidden from other players.

This is an interesting proposal, to take private devices that normally demand our full attention and turn them into a catalyst for social interaction. With Lundgren and Torgersson's idea in mind, we developed a game titled *Butter It!*, a competitive game for 2-4 players. By using a tablet as a symbolic tub of butter and individual phones as pieces of toast, *Butter It!* creates a collocated experience where players compete to butter the most pieces of toast to be declared the butter champion.

RELATED WORK

Games are an ideal environment to experiment with collocated interactions because they invite people to break social norms while interacting with each other. Many mobile games already exist that force people to interact with each other in the same physical space.

SPACETEAM

Spaceteam is a multiplayer, cooperative game designed for iOS and Android where players guide their spaceship through the hazards of interstellar travel. Each player is given a random array of knobs, buttons, and sliders with instructions of what to do with these controls. The challenge is that the control a player is instructed to change may be on another player's phone, meaning players have to simultaneously tell (or more often, yell) the instructions to each other.

Spaceteam encourages collocated interaction with mobile phones in a nearly ideal way. It makes for an excellent party or pub game and it served as inspiration for us to create another game that could be used in a similar setting.

MARBLE MIXER

Marble Mixer is a digital version of an ordinary marble game. It is a collocated game because up till four players must share one iPad to play. Players shoot marbles from their corner to feed a marble monster in the center, but players may choose to aim at other players in order to block their progress. It served as some inspiration in showcasing how a single device can invite several players to interact with each other.

CONCEPT

Butter It! is a simple multiplayer app that promotes collocated interaction by having players split actions on a shared iPad and their own individual iPhones. Players must physically sit next to each other in order to play the game.

As the name suggests, the goal of the game is to butter as many pieces of toast within the time limit. Players collect butter by swiping a butter stick on an iPad, then spread this collected butter on a piece of toast located on their own phone. Speed and precision are important; the former due to the time constraints, the latter because the game rewards evenly spreading butter over the entire piece of toast instead of rebuttering the same spot multiple times. To further reinforce the speed and precision pressures, players are penalized a few seconds for trying to submit an incompletely buttered piece of toast for scoring.
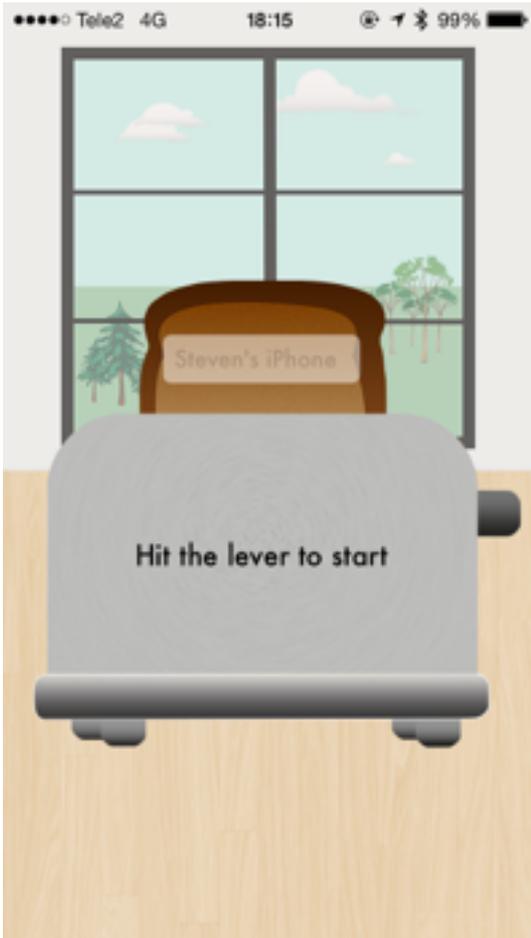

Figure 1: Start screen on an iPhone.

Drawing some inspiration from the iOS guidelines, we created a consistent look for the entire game by adopting a visual metaphor of a 1960's kitchen. The graphics, font, and overall presentation take their design cues from this metaphor. Players start the game on their phones by pressing a lever on an old fashioned toaster; butter is presented as butter on a plate (rather than the more modern tubs of whipped butter or margarine); even the font choice was picked to be representative from this time period. There is only one break in the consistency, which is the player select screen on the iPad, because we borrowed a standard screen from Apple's Multipeer Connectivity framework due to time constraints (iOS Human Interface Guidelines, 2014).

Figure 2: Gameplay screenshot of a player's iPhone.

DESIGN METHOD

IDEA GENERATION

From the start, we wanted to create a simple, yet fun, game. After a slow start brainstorming ideas, inspiration struck while taking a lunch break. One of us was buttering a piece of bread and we thought that this could be the basis of a good game. While buttering bread is a solitary task, breakfast is often a social event because of the shared setting. By forcing people to draw butter from a common pot, we could recreate a social breakfast setting in our game.

PROTOTYPING

We developed the original prototype for the game with just pencil and paper. With these humble beginnings, we were able to plan out the game's graphics, layout, and gameplay that we would eventually implement in the final mobile app. Planning out the visual aesthetic and gameplay before any programming guided us throughout the entire process and made development much easier.

GAMEPLAY DESIGN

Our main goal with this game was to encourage collocated interaction in a fun way. There are three main components in Hunicke's MDA model for analyzing

gameplay, i.e. mechanics, dynamics, and aesthetics (Hunicke et al. 2004). From the start, we knew we wanted an aesthetic of a silly game that would feel natural to play at a party or a bar setting. The dynamics would involve forcing collocated interaction and mimicking the actual process of scooping and spreading butter. Thus, we designed our gameplay mechanics to develop these specific dynamics and aesthetics.

Figure 3: iPad screenshot during the game.

The most important gameplay mechanic for promoting collocated interaction is the iPad serving as a common source of butter of all players. This also led to a dynamic of sabotage, as players monitored each other's progress and tried to impede other players by physically pushing them. In order to mimic the process of scooping and spreading butter, we used simple swipe and touch gestures on the iPad and iPhone. Scooping butter in the game is simply swiping on the butter on the iPad; spreading butter is drawing butter lines on the toast with one's finger. We felt it was essential that players use the same finger for scooping and spreading butter in order to recreate the feeling using a butter knife. If players were to scoop butter with one hand and spread the butter with the other hand, this would break the game metaphor and make the gameplay too easy. To prevent players breaking the game this way, we force players to keep one hand occupied at all times by continuously holding down a button on their iPhone. Letting go of this button before the toast is completely buttered results in a penalty for the player, where they have to wait a few seconds before being allowed to continue.

EVALUATION

The game's mechanics were refined through an iterative design process, so we conducted frequent internal playtests throughout the development of the game. From the lessons learned in these tests, we would conduct scrum rounds to plan out our strategies for the day's design goals. Then we would playtest again to see if our work matched our vision for the goals of the game. During these iterative stages, the internal playtest sessions forced us to rethink and redesign several gameplay mechanics and dynamics. Internal tests were important for balancing some basic game mechanics, such as how much butter would fit on a player's virtual butter knife.

Once the game reached a presentable level of polish, we conducted two rounds of external playtests to gauge the collocated interaction and understanding of our game. Since the game mechanics mirrors real life interactions with bread and butter, we found that people quickly figured out mechanics, though the "hold here" button caused the most problems. Players also often complained about a lack of feedback; they did not always know what was required of them from the game. We resolved some of these issues by increasing font size and adding a few more messages that instruct the player. Playtesters also wanted more interaction between the players, an idea we elaborate on in the discussion sectin. When new players faced experienced players, we found that the more experienced players had an advantage of understanding the mechanics, interface, and the rules of the game, so we later added a brief tutorial image that explains the basics of the game.

DISCUSSION

Designing and implementing a mobile app in 5 weeks was a challenging task, especially since this was our first time developing for iOS. The combined pressure of having a standalone app, working in a tight deadline, and working in a new environment meant we were unable to program some game features. Because of our design goals to get people in the same physical space to interact with each other, we would have liked to added additional gameplay elements that force people to speak with each other, hinder other players' progress, or even encourage them to physically interact (e.g. like when we found players pushing each other in the playtest).

However, we did achieve our core goal of encouraging collocated interaction through game of buttering virtual toast. Future versions of this game would capitalize on this success and add additional game mechanics that increase interactions between players.

REFERENCES

Hunicke, R., LeBlanc, M., & Zubek, R. (2004, July) MDA: A formal approach to game design and game research. In Proceedings of the AAAI Workshop on Challenges in Game AI

iOS Developer Library (2014) iOS Human Interface Guidelines. [Online] Available from: https://developer.apple.com/library/ios/documentation/UserExperience/Conceptual/MobileHIG/index.html#//apple_ref/doc/uid/TP40006556-CH66-SW1 [Accessed: 9th January 2015].

Lundgren, S., Fischer, J. E., Reeves, S., & Torgersson, O. (2015) `Designing Mobile Experiences for Collocated Interaction` University of Nottingham, ACM, CSCW March 14-18.

Lundgren, S., & Torgersson, O. (2013) Bursting the mobile bubble. In First International Workshop on Designing Mobile Face-to-Face Group Interactions, European Conference on Computer Supported Cooperative Work, ECSCW'2013.