Taking the Game Outside: A Mobile Device Meta-Game that Rewards Children to Play Outside

Abstract

Studies have shown that children and adolescents today are increasingly sedentary, and their lack of activity is leading to an increase in obesity, diabetes, related health risks, and other social deficiencies. To help counteract this, we are introducing an Android application to encourage active living and healthy social lives at the user’s pace. The application grows with the users and adjusts according to their needs by allowing them to transition from supervised use under the direction of their parents to primarily independent use. Event creation is at the core of the application; users will create, look up and be notified of any ongoing events. To assist parents in keeping their children active, the app can provide them with the ability to set and track goals for their children and will notify them of upcoming activities involving their kid for their approval. Essentially, our mobile application is a very accessible and usable platform facilitating higher activity levels for kids and adults alike.

Introduction

The Average American spends 55% of his waking hours sitting down, and according to the Harvard Health Publications when Americans sit, they are often in front of a video display, a computer or a TV.[3] Youth between the ages of eight through eighteen spend an average of 7.5 hours per day engaged with media.[11] The problem itself does not stem from the amount of time individuals spend with media because technology has gradually made it much more accessible for everyone. Rather, the problem is inherent to the idea that media is providing little social value to youth. The TV shows they watch, video games they play, standards that social networks set are all constantly offering a stream of messages of violence, sex, alcohol, and gossip all right in the comfort of their homes. Our application seeks to direct users into social and active lives in a virtual format that’s easy to use and comfortable for users in this day in age. The application also supports a very effective parent-child notification tracking system. The goal is to not only train and develop physical, social, and mental health of our users but will also develop stronger parent – child relationships early.

The meta-game is based upon the completion of events or rallies. It can keep count of how many events a user has successfully completed as well as how many rewards the user has achieved. Events are tied to communities, which can be composed of groups and networks. Networks and groups can be as small as a close group of friends to as big as communities and schools. Tournaments can add to the complexity of events if the users so choose with coordinated multi-level events with different groups of users.

For users too young to use the full account, their accounts would have to be tied to a parent account, and it would be the parent that would create events and ultimately decide yes or no for participation for other events. All notifications that the child account receives are also received by the parent account. Parents will also have the option to tie a reward to a single event or a rally. Why does the meta-game invite parents to be involved? Well for various reasons. First of all, this will allow parents to engage in their children everyday activities promoting a stronger and closer parent-child relationship. It will also make our main goal more attainable since parents will now be able to reward their children as they please. No one knows a child better than his or her parents. This will motivate a user to complete an event in order to achieve a reward that is
very appealing. By making an event much more appealing to a user through the use of a parent-based reward, the user will feel prompted to complete more events and therefore achieving the goal of our meta-game. The GPS system will allow parents to keep track of their children increasing awareness and allowing better and more accurate parent-child security and communication.

**Background/Review of Past Work**

Over the past quarter century more than ever, it has become increasingly apparent that video games and apps have permeated the fabric of societies in developed countries around the world. Everyone is now engaged and fulfilled by gaming space from a very young age; and as a result, it has impacted the general public’s outlook on alternatives to games such as work and physical activity.

As evidence, since 1980, the rate of obesity in children has almost tripled.[2] It is well documented that obesity can be linked to higher incidence of Cardiovascular Disease, Type II Diabetes, and even psychological problems among children. [14] And these trends are particularly troubling because obese children are more likely to stay obese as adults, and therefore continue to suffer the negative consequences of their condition. [14] In fact, the risk of being obese as an adult increases with the length of time that a child is obese.

<table>
<thead>
<tr>
<th>United States</th>
<th>Percent</th>
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</thead>
<tbody>
<tr>
<td>White</td>
<td>62.8%</td>
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<tr>
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<tr>
<td>Hispanic</td>
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<tr>
<td>American Indian/Alaska Native</td>
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</tr>
<tr>
<td>Other</td>
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</tr>
</tbody>
</table>

Figure 1: Percent of Americans Overweight by Ethnicity

The severity of this problem has caused many people to come up with creative solutions to get children and adults active. Many attempts have been made to use devices such as pedometers and heart rate monitors to track students’ exercise habits. Schools in Howard County, Maryland have combined such devices with education initiatives designed to teach students healthy living and encourage them to reach fitness goals.[12] Schools in New York have used the data collected from devices like Polar Active fitness monitor to track the progress of students in their school systems, and to provide information for suggesting further measures that could be taken.[5][9] Our solution doesn’t require the use of additional hardware. Most users will own a phone that can be used to run the application, and the ones who don’t will still be able to get most of the functionality online.
With a similar intent, Michelle Obama’s Let’s Move Organization has sponsored a competition to develop health based mobile applications targeted at children. Most of the winners were applications that taught kids healthy eating habits, or told them how to counteract unhealthy food choices.[1] This is different from the focus of our application, which largely ignores nutrition, opting instead to focus on getting people active.

Commercial products like GeoPalz Activity Tracker[6], or HopeLab’s Zamzee[7] track the number of steps a child takes, and award points to the child based on their activity. Both products encourage parents to financially reward their children at certain milestones, and allow users to redeem their points for prizes.[6][7] While we also plan to have a reward system, the rewards will be entirely determined by the parents, as they are also setting the goals for their child.
One source of inspiration for our project is summer reading programs, which have been shown to motivate children to read by getting parents involved, and providing children with incentives to read.[8] We plan on implementing a similar model by constructing an organized program that can be tailored to focus on times children are less active, with the intention of getting kids to remain active year round. If kids are encouraged to organize sporting activities outside of competitive leagues, and realize how simple it is to do so, they will continue those habits throughout their lives without the need for incentives.

Striiv is also focused on increasing the activity and fitness level of adults. Its value proposition is based on the underlying belief that adults need motivation or incentives to engage in healthy activities. So it basically provides adults with a portable device for your keychain containing games powered by walking activities. For instance, there is a game that populations a deserted island with animals as you walk more steps. There is also a feature tracks how far you’ve walked and updates you on comparable distances (like the Eiffel Tower or Golden Gate Bridge). As the device becomes more popular, it is the contention of the company that more apps and games will be developed for the device. [15] We are trying to promote similar behavior by eliminating the logistical problems of organizing activities, instead of providing additional incentives or rewards for being healthy.
Fitocracy is a fitness themed social networking site. Users log their workouts, and complete “quests” by doing particularly rigorous workouts. Users can then compare their stats with others and congratulate each other on their progress. Our focus is on a community aspect, and on getting parents involved with the health of their children, but we are not going for a full social networking experience. We want to find a way to encourage real world socializing through the use of technology, not create a means for virtual communication.[4]

Our device attempts to solve the problem of childhood inactivity in a way not done before. We focus on getting kids to play with each other by making it easy to organize games and activities, and provide parents with the means to set goals for their children. We also hope that by encouraging healthy living habits at a young age, we will establish a framework for kids to continue those habits through their teenage and adult years.

Users

Our target audience can be divided by an age, which is around 15 years of age with a mobile smart phone. We believe that those two groups have generally two different goals when using our product. Children 13 and under typically are still dependent in some capacity upon their parents when it comes to social gatherings outside of school, beyond that certain target age we find that children slowly build an independence from their parents. The full app has all the features previously addressed available to them. The lite app removes all features that the younger audience can unintentionally abuse, while adding security measures so the parent is given power to give the final word for their child. This means that a user with a lite app will still be able to view all events tied to his or her account but not accept or create events outright, communication among accounts are restricted to immediate friends and secure networks like school affiliation. Thin apps are intimately connected to a parent account though optional features such as GPS tracking when an event is underway and through explicit features where the parent can view all events that the child account can see and have tentatively accepted waiting for a parent to give the final word.
Scenario

Steve, 16 year old boy has just gotten out of school. He wants play some basketball behind the school building. He accesses the application on his phone and signs in. He sees other fellow users on too within his school network. He presses the create event button and the app switches on over to the map screen centered on his location. Steve drags and drops the thumbtack just above where his current position is, the basketball court. The thumbtack expands and more options are available. He can make event private or public, assign a time, write a tiny description, and decide the minimum and maximum number of there at the event. Steve types everything out and sets the time 20 minutes from now. He hits confirm, and the application pings the event everyone on his friends list first. Bob, one of Steve's friends, gets a notification on his phone from the application. Bob checks his map and sees the event with 6 people already signed in for the game. Bob accepts, and makes his way to the basketball court. Steve sees 7 of his friends have accepted, Bob being the last and green lights the event. Little Jimmy of 12 years checked yes on his phone, but the response was relayed to his mother’s parent account who ultimately checked no. Report cards came in and his mother found out. Poor Jimmy.
References


12. Sunderland, Lowell E. A high-tech way to monitor fitness, Collections County School System

   http://www.jstor.org/stable/3556550

Appendix
Children are simply not going out and playing as much as they use to. This may be because of television, video games, social media sites, and downright laziness. Kaiser Family Foundation has reported that a whopping 53 hours a week is the amount of time a child eight to eighteen spends on entertainment media[11]. Children need to have a reason to go outside, and in a world where efforts are measured in points and attention online, the outdoors seem less and less appealing. What if we could take that sort of game aspect and bring it outside, like what foursquare did to restaurants. Instead of restaurants we have user-generated hot spots like basketball courts and school fields. Users would sign-on on their phones and with the GPS abilities on most phones check in and meet up with other users to hang out and play. A whole meta-game can be developed with points rewards to duration or distance traveled. Imagine simple games like Hide-and-Seek enhanced with an actual scoreboard on your phone. Parents can keep on where their kids are for safety and peace of mind. Kids can build their own communities as they play. Natural exercise can be masked under a platform that many kids can relate to.

The project changed once we started really ironing out the target audience for our app. What once started as a mobile app specifically for younger audiences turned into a lifestyle app that would be shaped based on initial age and their growth as an individual. Adults and older adolescents share the same features and the same app, while younger users for the sake of security and parent involvement will have accounts tied to a parent account. It allows all users of different groups, preferences, age, and maturity to enjoy and benefit from the application. The overall goal of the application started from child obesity and a meta-game, and evolved into application that promotes social health and active lives by giving the user the power to create events at their own pace while a lot of the heavy logistics and communication barriers are done by the application.