ENPRO 351 Final Project Report

Spring 2011

Combating Underage Drinking and Driving

Executive Summary

The Clue-me-In iPhone application is designed for parents to keep track of their children outside the home. Clue-me-in is a dual user interface application in which the parent can indirectly communicate with their child through the application. The application can be used to possibly detect impairments in cognition, reaction time, and balance in children who may be under the influence of alcohol or drugs. Parents will be able to then identify whether their child is suitable for getting behind the wheel. Clue-me-in is a smart, innovate way to bridge the communication gap between parents and underage teens. This can open the door to a healthier relationship between parents and their children as well as assuring parents of the safety of their children outside the home. Outside the realm of responsibility and child safety, the application can also provide an entertaining gaming experience containing three fun games.

The application is geared towards parents of registered teen (16-20) drivers. This would cover any drivers which would be under the legal age of alcohol consumption. The product could also be assigned to married, separated, or divorced parents concerned about child endangerment due to alcohol consumption from their spouse or ex-spouse. Court orders could also be administered to those above legal drinking age if they were caught previously with a DUI violation. The product could also simply be an attraction to those interested in entertaining and gaming.

The Clue-me-in application includes a wide range of information to guide parents of their child's plans outside the home. Information about a child's activities on a daily to weekly basis can be listed in the application to keep parents aware of their child's plans through the week. Furthermore, the times and locations of these activities can also be entered providing further information for a parent to identify their child's whereabouts. The application will also contain a contacts list for who the child will be with outside the home and how that person can be contacted if the child were unable to be reached. This parent side of the application will include a way for the parent to send out the impairment games to their child at any desired time. The application will then notify parents of their child's passes and fails as well as an image displaying the child's picture confirming his/her involvement in the game. On the child side of the application known as Key-me-in, the child will have all the same features. The child will also have the ability to change plans outside the house which the parent can be notified of through the parent end of the application.

The application includes three different games. The first game is the stoplight game which tests for reaction time and vision impairments. The second game is the memory game that will be used to detect impairments in vision, reaction time, cognition, and memory. The third game is a pursuit rotor game which measures balance and vision

This application will require parents and teens to have an unwritten contract between them. Parents let the kids have the car with the stipulation that the children share their plans for the night, do not drink, and will prove that when they get behind the wheel, they can drive safely. All of which can be fulfilled by using the Clue-Me-In app. Since the app requires an unwritten contract between parent and child, this app will only work for families where there is a line of communication between the parent and child.

IPRO 351 did more than create this app this semester, even though development was the greatest accomplishment for this semester. We tested the app and the games to see if they are valid. In addition to these, we created and administered surveys for parents and teens to measure how likeable the app is. Also, we obtained the support of a non-for-profit organization, Mothers Against Drunk Driving (MADD).

Purpose and Objectives

Problem

As reported by the National Highway Traffic Safety Administration, underage drinking and driving is an issue that affects many high school students. 60% of juniors and seniors in high school have admitted to riding in a car with an impaired driver.

The consequences of underage drinking and driving not only affect high school students but, their parents and loved ones are also affected. Parents of teens that drink and drive run the risk of incurring catastrophic financial loss due to their child's poor choice to drink and drive through property damage costs, legal representation fees and any lawsuits as a result of the crash.

Studies done by Mothers Against Drunk Driving (MADD) have found that "nearly 30% of high school teens have engaged in binge drinking and 60% of juniors and seniors admit to riding with an impaired teen driver" (MADD). Most surprisingly, we found that 48% of all high-school seniors that do drink have parents that believe they are non-drinkers (National Highway Traffic Safety Administration). About half of the teens we are trying to stop have parents who do not know that they are at risk for catastrophic financial loss. Because of this, we believed that there was a communication error between the parent and child. Teens may be lying to their parents when they go out or parents may not be receptive to the signals being sent to them by their teen. Either way, some error in the communication between the parent and child is occurring.

Our belief was shared by the Surgeon General, who in their Call to Action report found that parents are the best resources to prevent drinking and driving. In fact, "74% of kids (8-17) said their parents are the leading influence on their decisions about drinking" (MADD). Because of this, IPRO 351 focused on a solution to society's problem of underage drinking and driving through improving the parent-child relationship.

The available solutions to society's problem of underage drinking and driving deal mainly with the biological detection of alcohol impairment through blood tests, urine tests, or breathalyzers. Although these methods do detect impairment, we require a solution that will increase the communication between parents and children while detecting impairment.

Solution

IPRO 351's solution to the problem is to develop an iPhone app that will improve the communication between the parent and child while testing the teen for impairments that will inhibit their ability to operate a motor vehicle.

Before the teen begins their evening plans, they will disclose who they're going with, what they're doing, and where they plan on going into the Key-Me-In app on the iPhone. This information will be sent to the parent via the Clue-Me-In app. At the end of the night before the teen operates a motor vehicle, the teen will take a test on the iPhone that will determine if they are too impaired to drive. The results of this test will be sent to the parent who will then determine if further action is required.

It is beneficial to note that this app will not stop the child from operating a motor vehicle in any way as the legal ramifications of such an app could be immense if a false positive or negative is reported. As such, IPRO 351's app focuses solely on improving the parent-child relationship which will ultimately decrease the prevalence of underage drinking and driving in society. The results of the impairment test will only inform the parent if the teens' behavior is indicative of alcohol impairment.

Sponsor

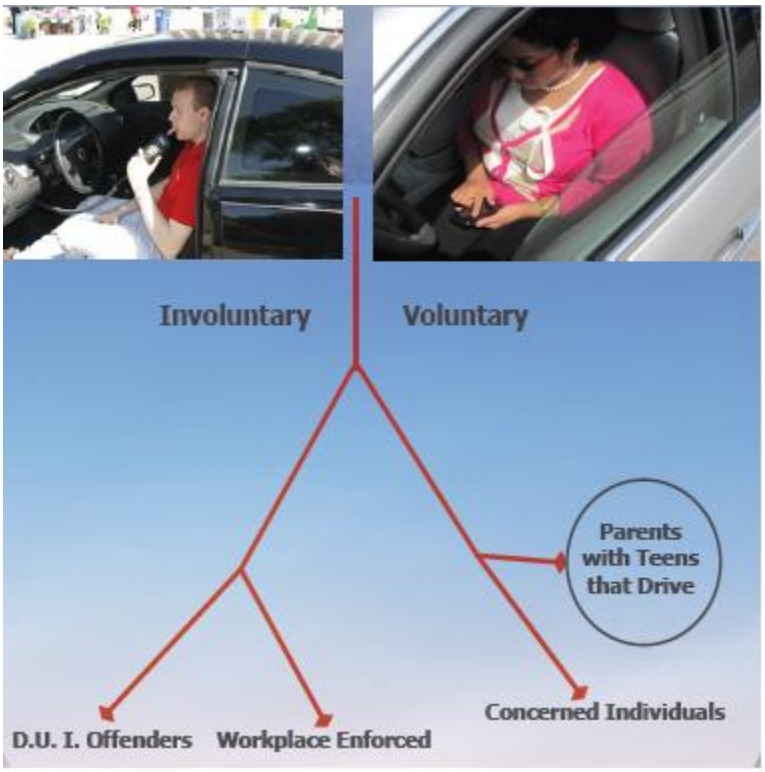
MADD is a highly acclaimed non-for-profit organization geared towards helping the families and victims of those physically, mentally, and/or emotionally harmed by impaired driving caused by being under the influence, whether it be alcohol or drug-related. As the mission of MADD to end drunk driving through appropriately proposed legislation, fundraising events, and awareness programs and teaching lessons, IPRO 351 felt that our product aligns with MADD's objectives through a technology-based solution expected to gain much appraisal in the ever-evolving information generation. Despite the application showing great potential, the support of organizations such as MADD is needed to further the advancement of the product. By gaining MADD's support, IPRO 351 can work together to spread information about the benefits of this application. Further support would be through financial, advertisement, and/or media-based sponsorships. In order to bring the product out into the market, sponsorships and donations would cover the product's startup costs. By sponsoring this product, MADD will show its support for innovative technology towards combating the dangers of underage drinking.

During this semester, IPRO 351 has gained support from MADD. A statement of IPRO 351 and MADD's relationship is as follows: "MADD Illinois strongly supports and applauds the efforts of the IIT IPRO 351 Team who created innovative, interactive iPhone Application Technology to Combat Drinking and Driving" (MADD).

From left to right, Head of MADD Illinois, Head of MADD Global, Talha Qureshi, and Jennifer John

Target Market

The Clue-Me-In app (with the included sobriety tests) will seek to effectively attract parents with teen that drive in the iPhone and Apple App Store Markets. Because Clue-Me-In will be offered at a highly competitive price compared to the other available solutions in the market, our program will attract consumers seeking the core benefits of our solution (a noninvasive deterrent for drinking and driving) and those app users who purchase our product due to their curiosity.

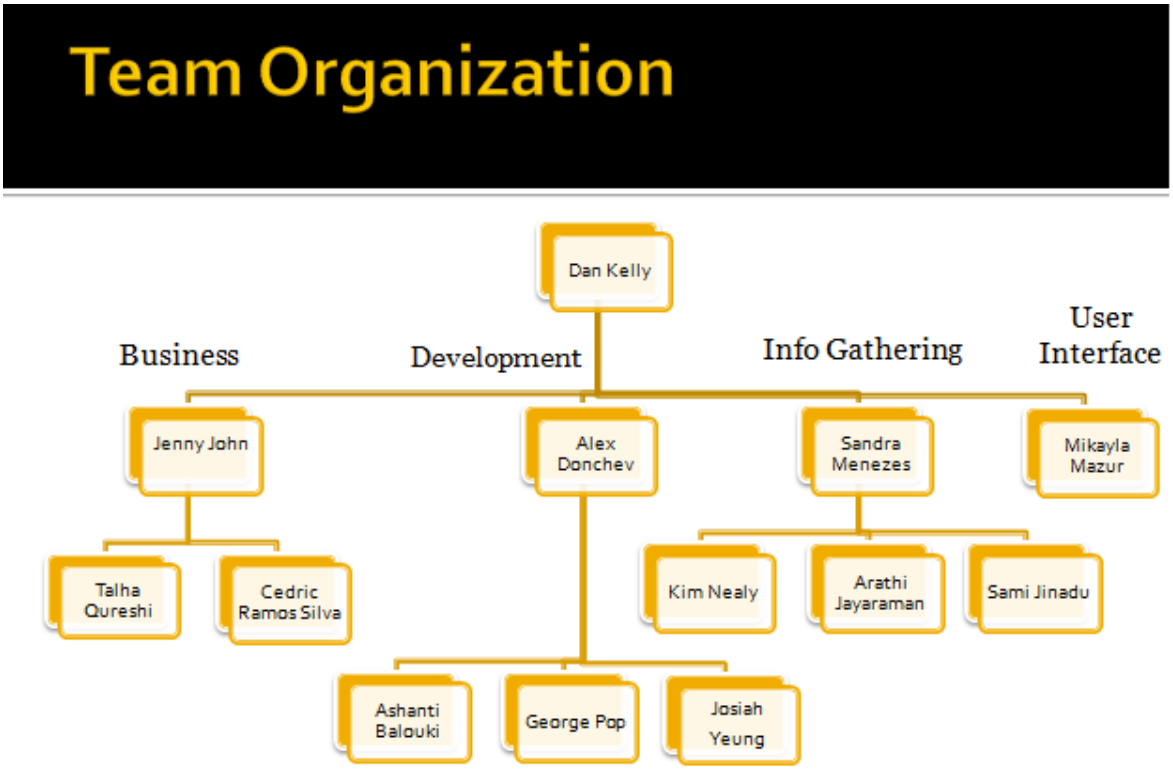


This diagram depicts our target market population, parents with teens that drive who are looking for a noninvasive deterrent for drinking and driving.

Please refer to Appendix B for a more detailed reading of the Business Plan.

Organization and Approach

IPRO 351 divided the team into four subgroups. Each subgroup played an important part to the overall outcome. Three of the subgroups needed to use methodologies in order to accomplish their subgroup's goals, Development, Info Gathering, and User Interface subgroups.

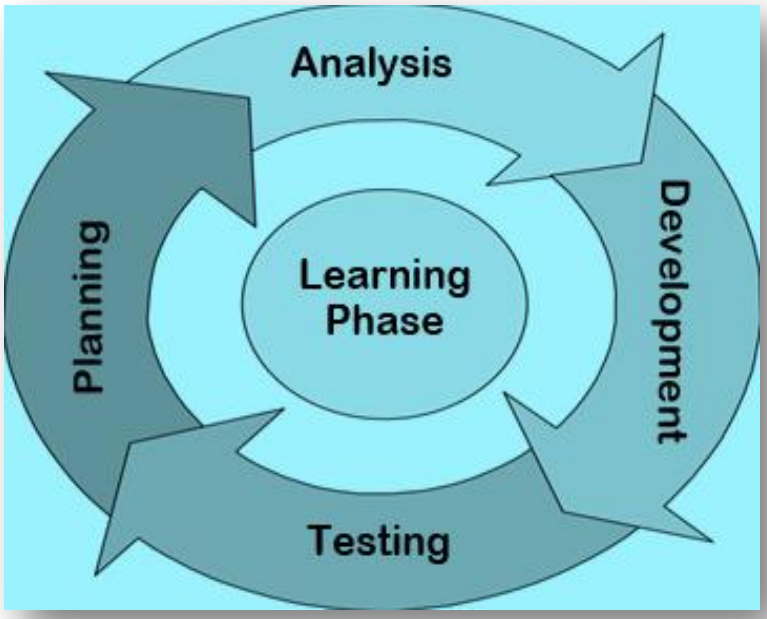


The above diagram is a graphical representation of IPRO 351's Team Organization.

Development Methodology – Development Subgroup

The Development Subgroup used an iterative approach when developing the two applications. This method was needed due to the fact that the team members did not have any experience in iOS development. At the same time, incremental deliveries of the software were needed in order to both start the live human testing and test the initial user interface prototypes.

Each iteration started with a planning phase. In this phase, the whole IPRO team would sit down and come up with ideas of new functionalities or modifications to already implemented ones. The next stage consisted of analyzing the newly proposed ideas and figuring out if they can be implemented in a timely fashion. Being new to the iOS development, it was hard to determine what was possible and what was not. For this phase the Development Subgroup received a lot of guidance from Professor Michael Saelee. Next, the team proceeded with implementing the new functionalities in the application. The final phase of each iteration was composed of testing the application. This phase could be divided into two parts. First, involved testing done by the Development Subgroup to make sure the application is free of defects. Second, involved testing by the User Interface Subgroup to make sure the application was easy to use and to make sure the games were valid. The testing phase would introduce a few new ideas which were brought to the planning phase of the next iteration.



The above diagram depicts the continuous cycle the Development Subgroup used for Development Methodology.

Testing Methodology – User Interface Subgroup

First, the User Interface group used two iPod Touches to test 101 random individuals. Each individual was asked to play the stoplight game ten times. The average as well as the standard deviation of each individual's scores were calculated and then used to calculate a population average and average standard deviation. This formed the population baseline. Next, a sample of ten individuals was obtained. Each individual volunteered to take the stoplight game ten times while sober and then another ten times while impaired. The differences in averages and standard deviations between sober and impaired samples were analyzed for a "pass" or "fail." This "pass" or "fail" was determined when a t-test analysis was performed on the scores. The t-test value was used to determine statistical significance.

Please refer to Appendix C for a more detailed description of testing methodology.

Survey Data Collection – Info Gathering Subgroup

The Parent Surveys were created and administered to determine if our target market, parents with teens that drive who are looking for a noninvasive deterrent for drinking and driving, are interested in our app. Also, to see what parts of the app the parents like the most. The Teen Surveys were created to see how willing the teens are to using the app.

The surveys were created using Google Survey. We had to make use the surveys were both reliable and valid. The surveys were created according to guidelines found in a research book titled, *Methods in Behavioral Research*. Also, a Psychology faculty member, Danny Gandara, helped make sure the surveys were both reliable and valid.

The Parent Surveys were administered in two ways. One, a Facebook page was created in order get friends and family that are part of the target population to take the survey online.

The above screenshot is of the Facebook page IPRO 351 created in order to promote the app and to obtain survey data.

The other way the survey was administered was by going to Parent Teacher Association meetings of high schools in the Chicagoland area. At these meetings, a short presentation about the app and a demonstration of the app was given. The parents were then able to use the app to see how they personally like or dislike the app. After the parents had some hands on experience with the app, a paper copy of the Parent Survey was given to each parent to fill out.

The above pictures are of parents using the app and filling out the parent survey.

The Teen Survey data was collected through the parents. When the parents filled out the Parent Survey, they were given the link for the Teen Survey and asked to get their children to fill it out online.

All the data was then stored in Google through Google Survey. Graphs of the data for both Parent and Teen Surveys were made using excel.

Please refer to Appendix D to see a copy of the Parent Survey Link.

Please refer to Appendix E to see a copy of the Teen Survey Link.

Analysis and Findings

Clue-Me-In Product

Clue-Me-In is a product that bridges communication between parents and their teens, specifically, teens who are registered drivers. Clue-Me-In consists of 2 component applications, a parental informant application named Clue-Me-In and a teen interface application named Key-Me-In. The parental and teen applications are in communication with one another such that the parent's application is in sync with the teen's phone application at all times.

Clue-Me-In:

Clue-Me-In is the parental informant side of the application which allows parents to get the basic information about where the child will be and how the child can be contacted. Parents are able to connect their application to the applications of all their driving teenagers. When the teen makes plans to leave for the evening, the parent receives the necessary information about the child's event itinerary, location of events at which the child will attend, names and phone numbers of the peers of the child that will be attending the events with as well as the names and phone numbers of the parents of those peers.

The child's event itinerary will be viewed on the parental interface with the name or type of each event as well as a start and approximate end time for each event. The events will be placed in sequence for easy viewing for the parent and when start and end times are changed by the teen during the evening, the parent will be able to view the change in times.

The locations of the events present on the child's itinerary will be viewable by the parental interface using a Google mapping component. Thus, the address of the events that the child has inputted into his/her side of the application will be viewable in its written form as well

as its physical form on the Google map. In the same way, if the child is not able to input an exact address, the pinpoint area that the child has selected for being the approximated location where the child will be during the event, will be viewable by the parent on his/her interface. Thus, the parent can click on the pinpoint on the map and receive the address of that pinpoint in case of emergencies.

For each event, a contact list will be included. The contact list for each event will include the names, phone numbers, and inputted pictures of the peers with which the child will be for that specific event. Also, the name and phones number of at least one parent or guardian of the peer will also be viewable.

The parental interface also has the ability to send the child requests to play specific games at whatever suggested times of the evening. In the same way, the parent will be texted the scores of those games as well as a camera screenshot of the child playing the game the moment after the game is completed and scores are being tallied.

Key-Me-In:

Key-Me-In is the teen interface side of the application which allows teens to inform their parents of basic information of their whereabouts for the night. When the teen makes plans to leave for the evening, they are able to input information about the activities they will be doing for the night, the locations of those events, and who they will be with during those events.

Teens are able to input the names of their events for the night as well as the approximate start and end times for those events. The events will be put in order of their approximate start and end times and when an event starts later than expected or runs over the estimated end time, the child is able to change the time so as to inform their parent of delays in event happenings.

The child's event itinerary will also include the locations of the inputted events. The child is able to input the exact address of the event into a Google map which will show marked pinpoints of the event locations for the child and parent to view on their respective interfaces. In the same way, if the child is unable to input an exact address for an event, the child can click in the estimated vicinity of the location on the Google map which will mark a pinpoint there. Thus, the parent will be able to retrieve the exact address of that pinpoint so that they know of the estimated vicinity of event.

The name, phone number, and picture, if available, of each individual in the address book of the child's phone is imported to the teen's application. In this way, the application forms its own contact list of the child's peers. The child is then able to input remaining information, including the name and phone number of at least one parent of each peer into the application's contact list. Thus, the child can select the peers that they will be with at each event for the night and the parent receives this information which includes the names and phone numbers of all the peers the child will be with at each event as well as the name and phone number of each peer's parent.

The child also has free access to play the games on the application at any time of the evening and outside the evening. However, the child is encouraged to play the games sent by

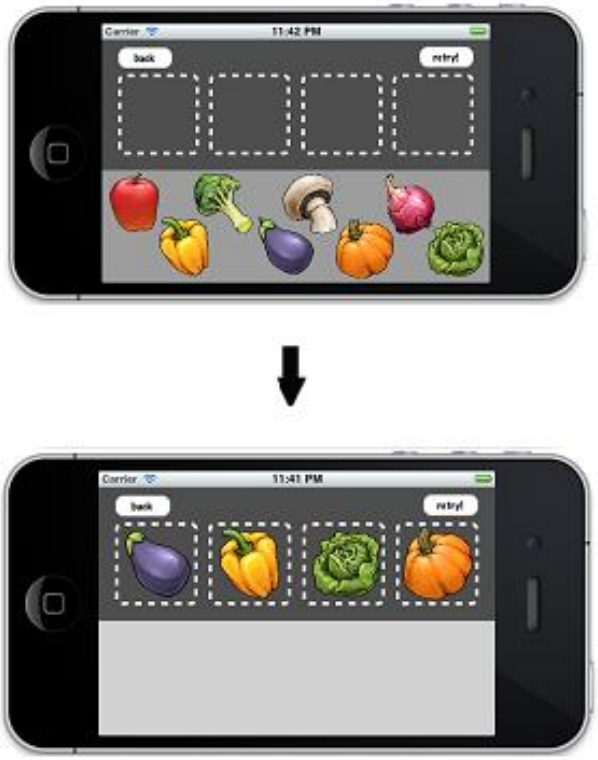
notification by their parents during the night. Notices to play specific games will be sent to the child at certain times of the evening as per the parent. The scores of those games and a secret picture taken of the child the moment after the completion of the game will be viewable to the child before being sent to the parent.

Stoplight Game:

The stoplight game is a component of the 3-game system of the Clue-Me-In application. It can be played both leisurely and when the parent sends a notification to their child to play the game so the parent can see the child's results. Once the game is chosen to be played, a horizontal stoplight appears on the screen of the phone. A green light will appear on the right-hand of the horizontal stoplight. Participants will tap and hold the green light. Once the middle light turns yellow, participant must remove his/her finger from the screen. As soon as the stoplight turns red, the participant must quickly tap the red light on the left-hand side of the stoplight with his/her finger. The reaction time from when the participant's finger was removed from the green light to when the participant's finger tapped the red light is recorded.

Each teen will be able to set their own baseline reaction time after playing their first ten consecutive games in a sober state. This baseline reaction time is their average reaction time in a sober state and thus, any reaction time lower than this baseline reaction time will be deemed as a "pass". Any reaction time higher than the baseline reaction time will be deemed as a "fail". A "fail" report of many games in succession can be an indication that cognitive impairments that can be caused by sleep deprivation, drugs, and/or alcohol may be slowing down their personal average reaction time. This game tests vision and reaction time.

Memory Game:



The memory game is a component of the 3-game system of the Clue-Me-In application. It can be played both leisurely and when the parent sends a notification to their child to play the game so the parent can see the child's results. Once the game is chosen to be played, participants are shown a group of 4 objects for a certain number of seconds. At the end of this time limit, the objects disappear from their sequence. Then, the participants are to drag and drop the objects back in their original order. The time it takes from when the objects disappear on the screen to when the participant is able to put the objects in their correct order is recorded. When the participant is putting the objects in order, wrong answers will be marked with a red "X" instantly and the participant is able to correct their mistake by dragging the appropriate object to that spot until all the objects are in the correct sequence.

Each teen will be able to set their own baseline reaction time after playing their first ten consecutive games in a sober state. This baseline reaction time is their average reaction time in a sober state and thus, any reaction time lower than this baseline reaction time will be deemed as a "pass". Any reaction time higher than the baseline reaction time will be deemed as a "fail". A "fail" report of many games in succession can be an indication that cognitive impairments that can be caused by sleep deprivation, drugs, and/or alcohol may be slowing down their personal average reaction time. This game tests cognition, memory, vision, and reaction time.

Pursuit Rotor Game:

The pursuit rotor game is a component of the 3-game system of the Clue-Me-In application. It can be played both leisurely and when the parent sends a notification to their child to play the game so the parent can see the child's results. Once the game is chosen to be played, a circular track appears on the screen with a pre-determined sized car on the track. The car will immediately start moving when the screen appears and the participant is to instantly place their finger on the car and follow the exact movement of the car around the track for 10 seconds. The amount of time the participant is in line with the movement of the car and the amount of time the participant is not in line with the movement of the car are formulated into a ratio that is calculated into the percentage of time that the participant is in line with the movement of the car. The speed of the car around the track as well as the size of the car to be used can be pre-determined before each game.

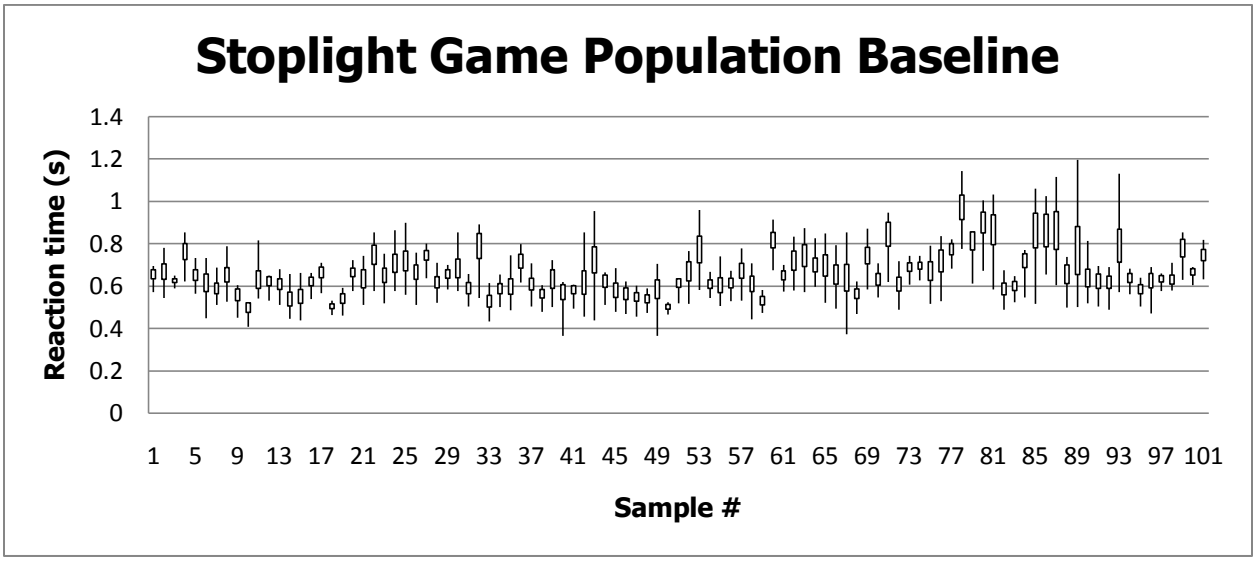
Each teen will be able to set their own baseline percentage after playing their first ten consecutive games in a sober state. This baseline percentage is their average percentage in a sober state and thus, any percentage higher than this baseline reaction time will be deemed as a "pass". Any percentage lower than this baseline reaction time will be deemed as a "fail". A "fail" report of many games in succession can be an indication that cognitive impairments that can be caused by sleep deprivation, drugs, and/or alcohol may be slowing down their personal average reaction time. This game tests cognition, balance, vision, and reaction time.

Testing Results

To determine the norm for the population we administered the stoplight game to 101 individuals, recording their score and standard deviation for a set of 10 individual attempts. The 101 individual results were used to calculate the mean and standard deviation of the entire sample population.

A comparison of their sober baseline scores against the mean and standard deviation of the population confirmed that their pre-drinking score was a statistically acceptable baseline.

The results obtained from testing the Stoplight game indicated that there is in fact a statistically significant difference in reaction time scores between an individual's sober state and their impaired state. Reaction time is indeed negatively impacted by alcohol consumption. This supports the validity of our Stoplight game and its ability to detect possible impairment.

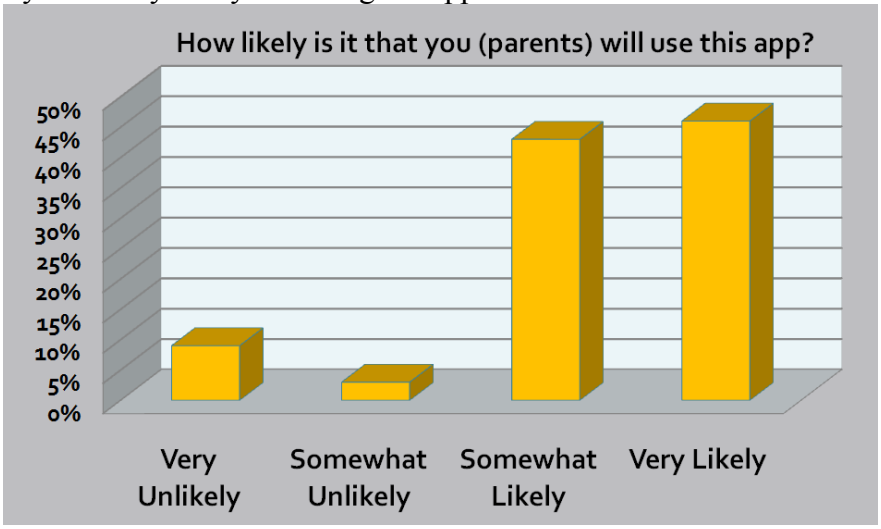


The above graph shows the minimum score, maximum score, average, and standard deviation of 101 sober scores in order to establish a population baseline. The overall average of each sober individual's average is 0.626. The average of each sober individual's standard deviations is 0.071.

Survey Results

The overall results from the Parent and Teen Surveys were positive. The results show that both parents and teens are interested in using the app. This is great news for our ambitions to place the app in the app store market.

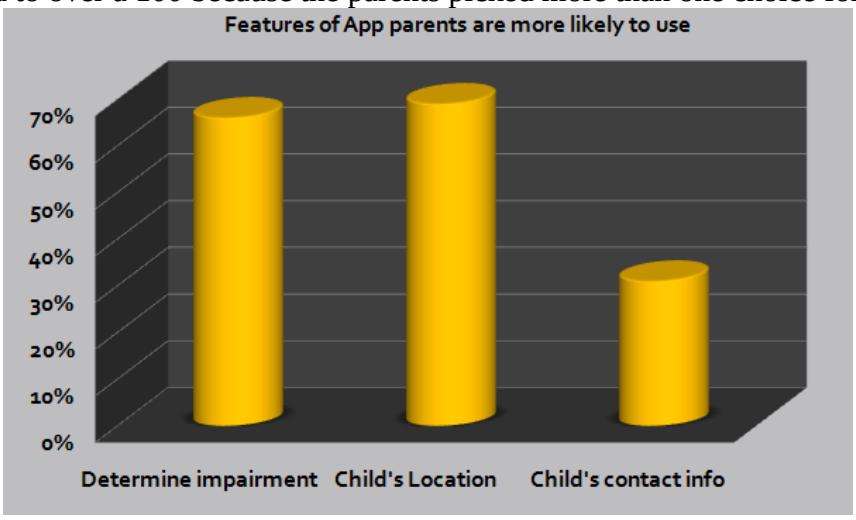
The below graph shows that almost 95% of the parents that were surveyed will either, "somewhat likely" or "very likely" be using the app IPRO 351 has created.



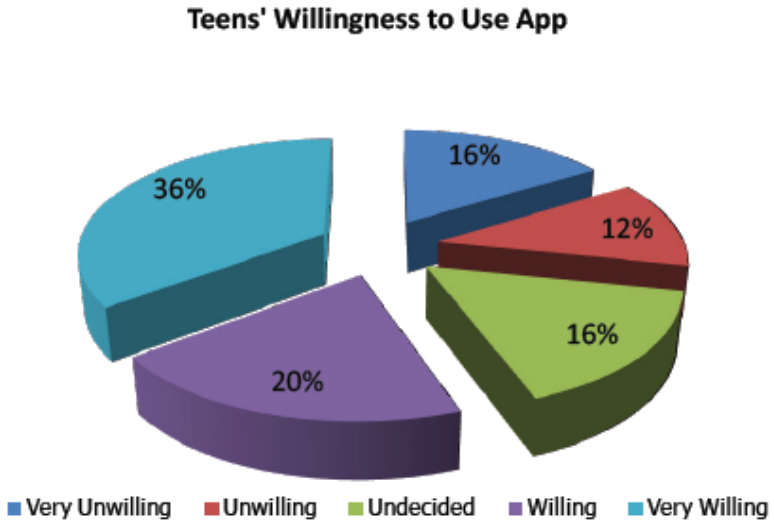
After reading the description of the "Flight Plan" the parents were asked what part of the app are they most likely to use. The choices the parents were given are listed below:

A) The part of the app that could determine whether the child's inability to drive might be impaired.
B) The part of the app that gives the parent information on where the child is located.
C) The part of the app that gives information on how the child can be contacted.

The following graph displays the survey results for this question. The graph shows that the percentages add to over a 100 because the parents picked more than one choice for the surveys.

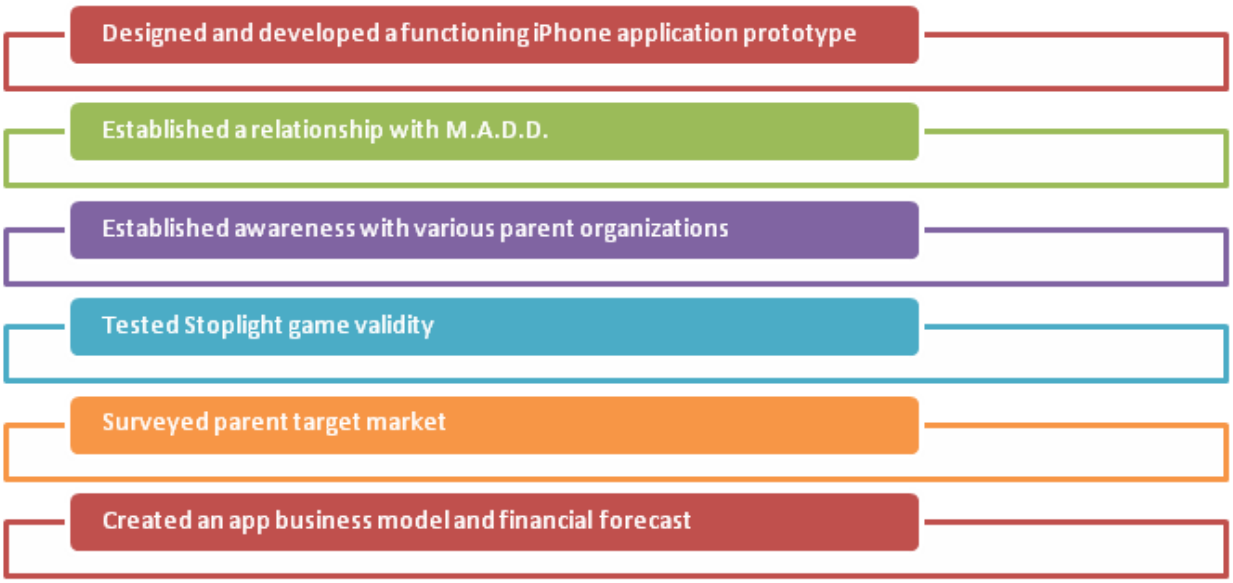


The Teen Survey results showed that not all teens are against using this app. The below pie graph shows that 56% of the teens surveys are either “willing” or “very willing” to use the app.



Accomplishments

The IPRO 351 Team has made many accomplishments this semester. Each subgroup contributed important aspects to this IPRO. The Development Subgroup created a working model of five things, Clue-Me-In (Parental Informant), Key-Me-In (Kid's side), Stoplight Game, Memory Game, and Pursuit Rotor Game. The Business Subgroup established a formal agreement with MADD and has also created an app business model and financial forecast. The User Interface Subgroup tested the Stoplight Game to ensure validity. The Information Gathering and Usability Subgroup visited high schools and PTAs to raise awareness and conducted surveys.



The above chart lists out all the accomplishments IPRO 351 has achieved during the Spring 2011 semester.

Conclusions and Recommendations

Conclusions

The Spring 2011 IPRO 351 Team has the following conclusions. Clue-Me-In is an app targeted at parents with underage children that drive. This app has the potential to be successful in the Apple app store. The success may be partially due to MADD's interest in this app. With MADD's help, the app can get a lot of advertisement. Our prediction that this app will be successful is also based on survey results conducted by this IPRO indicating that both parents and teens would be willing to use the app. However, this app is not a solution to underage drinking and driving for every family. This app will only work if the parent and teen already have a line of communication between them. Furthermore, we conclude that marketing the app at $4.99/yr. is realistic in regards to start up costs and maintenance costs, as well as research indicating that $4.99/yr. is a reasonable price to our target market.

Recommendations

In order to ensure that Clue-Me-In and Key-Me-In become apps on the Apple app store, we need to do three things. One, hire a professional coder to finish the project. Two, establish a beta user group of 100 families. Three, obtain official support of endorsers.

Reference

Mothers Against Drunk Driving

Summary Sheet

Appendix A: List of Team Members

Appendix B: Business Plan

Appendix C: Testing Methodology

Appendix D: Copy of Parent Survey Link

Appendix E: Copy of Teen Survey Link

Appendix A: List of Team Members

Ashanti Balouki – Computer Science

Alexander Donchev – Computer Engineering

Arathi Jayaraman – Psychology, Premedical Studies

Samiat Jinadu – Psychology, Premedical Studies

Jennifer John – Biochemistry

Daniel Kelly – Business Administration

Mikayla Mazur – Biology

Sandra Menezes – Chemistry, Focus in Education

Kimberly Nealy – Professional and Technical Communication

George Pop – Architecture

Talha Qureshi – Biochemistry

Cedric Ramos Silva – Aerospace and Mechanical Engineering

Josiah Yeung – Computer Science

Appendix B: Business Plan

Marketing Plan and Business Model

When analyzing the business aspect of this product, there are many costs which must be taken into consideration. The first aspect of the application is the development of a working prototype of the games. This initial development should not carry any costs. As updating and revising a functional application approaches, costs for such input should be taken into consideration. The product will also need the input of a professional developer. This may cost approximately $50-60/hr for up to $2,500 over the course of development. Further costs will be needed to pay for a liability lawyer. The lawyer is needed to make sure the product does not claim to have any features for which its liability may result in one being sued (Approximated at $100/hr for up $2,000). There will also be costs to place the application on the Apple app store online. This was found to cost around $100-200 depending on the application. Once the product is developed and launched into the app store, advertisement and marketing will be required. These costs are approximated to go up to $5,000 for the first year.

In order to cover such costs, both promotion through sponsorship/endorsements and profits made through application price setting will be needed. Promotions required both advertising and communication. Brochures, pamphlets, handouts, and a Facebook group were created to display the product information for potential sponsors and endorsers. There companies and organizations were then contacted and given brochures to understand our product. There were many potential companies which a product dealing with fight against underage drinking and/or driving could attract. Companies for profit such as alcohol distributing companies and insurance companies could have been potentially sought for sponsorship. Not-profit organizations such as MADD, TADD, and SADD could have been potentials sources of endorsements. MADD was an example of an organization that showed interest in a potential partnership. In fact, MADD Illinois strongly supports and applauds the efforts of the IIT IPRO 351 Team for creating an innovative, interactive iPhone Application Technology to Combat Drinking and Driving. PTAs of various Chicago Land high schools were also contacted in order to reach the target market population. It is expected that parents in the PTAs will spread the word about this iPhone application.

When dealing with the price aspect of the application, there are many factors that must be considered. Does the product have enough value to be worth more than $0.99/yr? Will a higher price deter parents from purchasing the application? What other applications have similar features and what do these products cost? There were many potential options for dealing with the price aspect of such an application. It was found that most upper end application in the Apple app store peaked around $4.99 per year. The Clue-Me-In application contains many features similar to these upper end applications at $4.99/yr. Also, this application requires the backend maintenance of the server where all the data will be stored. In for such maintenance, a price at $4.99/yr is better justified. Along with this pricing option, individuals are given the option to download for the parent and child side of the application for free. The individual downloading the free version of the Clue-Me-In application will only be a basic sample with limited features in that there will be a sample child that the parent will be "following" so that the parent can see how the app functions to input activities, event locations, and game statistics on the interface. The individual downloading the free version of the Key-Me-In side of the application will only

consist of the games for the child or anyone to play with on their time for leisure. In order for communication between both sides of the application, the individual must then purchase the full application for $4.99/yr. Thus, the cost covers the linking of the two applications to be sync with each other, be updated simultaneously, and for information from the teen application (game stats or changes to evening plans) to be saved in a backend server. This marketing strategy will be beneficial in the sense that there is no harm in downloading a free application. Once downloaded and interest is developed, an individual may then purchase the full application. This "freemium" aspect of the application provides individuals a taste of the game prior to purchasing. An overall analysis of finances must be taken into consideration. Both pricing and sponsorships are therefore necessary tools for product success in the market.

Financial Analysis

	Year 1	Year 2	Year 3
Expenses			
General/Administrative	$ 5,000.00	$ 2,000.00	$ 3,000.00
Sales and Marketing	$ 1,000.00	$ 1,500.00	$ 1,500.00
Research and Development	$ 5,000.00	$ 10,000.00	$ 10,000.00
Revenue			
Price per subscription	$ 4.99	$ 4.99	$ 4.99
Subscribers	3,000	12,000	15,000
Sales	$ 14,970.00	$ 59,880.00	$ 74,850.00
Commission	$ (4,491.00)	$ (17,964.00)	$ (22,455.00)
Net Sales	$ 10,479.00	$ 41,916.00	$ 52,395.00
Net Income	$ (521.00)	$ 28,416.00	$ 37,895.00

The above is a chart representation of the Marketing Plan and Business Model described in this section of the paper.

Appendix C: Testing Methodology

Systematic Observation Study

I. Setting

a. Take the iPod touch with you to either a party or a bar.
b. The participants are not getting intoxicated for this study. They are drinking for reasons other than this study.

II. Informed Consent

a. Before the participants get intoxicated, give them a verbal informed consent.
b. State the following information:
    i. Your name:
    ii. Contact information: State that if they want your contact information you will provide it. If they do not want it, you do not need to give it out.
    iii. Name of the IPRO: IPRO 351 "Underage Drinking and Driving"
    iv. Purpose of playing the games: To collect data for IPRO project.
    v. Confidentiality: Their data can no way be linked back to them.
    vi. Completion: They do not have to complete participation in the study if they do not want to.

III. Testing the Games

a. Before Intoxication

i. Make sure the button that records the data to the database is OFF.
ii. Demonstrate the Stop Light game, Memory game, and Obstacle Course game once to the participant.
iii. Allow the participant to try the Stop Light game, Memory game, and Turntable game once. Make sure you tell them to hold the iPod touch in their preferred hand.
iv. Now, switch the button that records the data to the database ON.
v. Select "sober" on the iPod touch.
vi. Have the participant play the Stop Light game 10 times.
vii. Next, have the participant play the Memory game 10 times
viii. Finally, have the participant play the Turntable game 10 times

b. After Intoxication

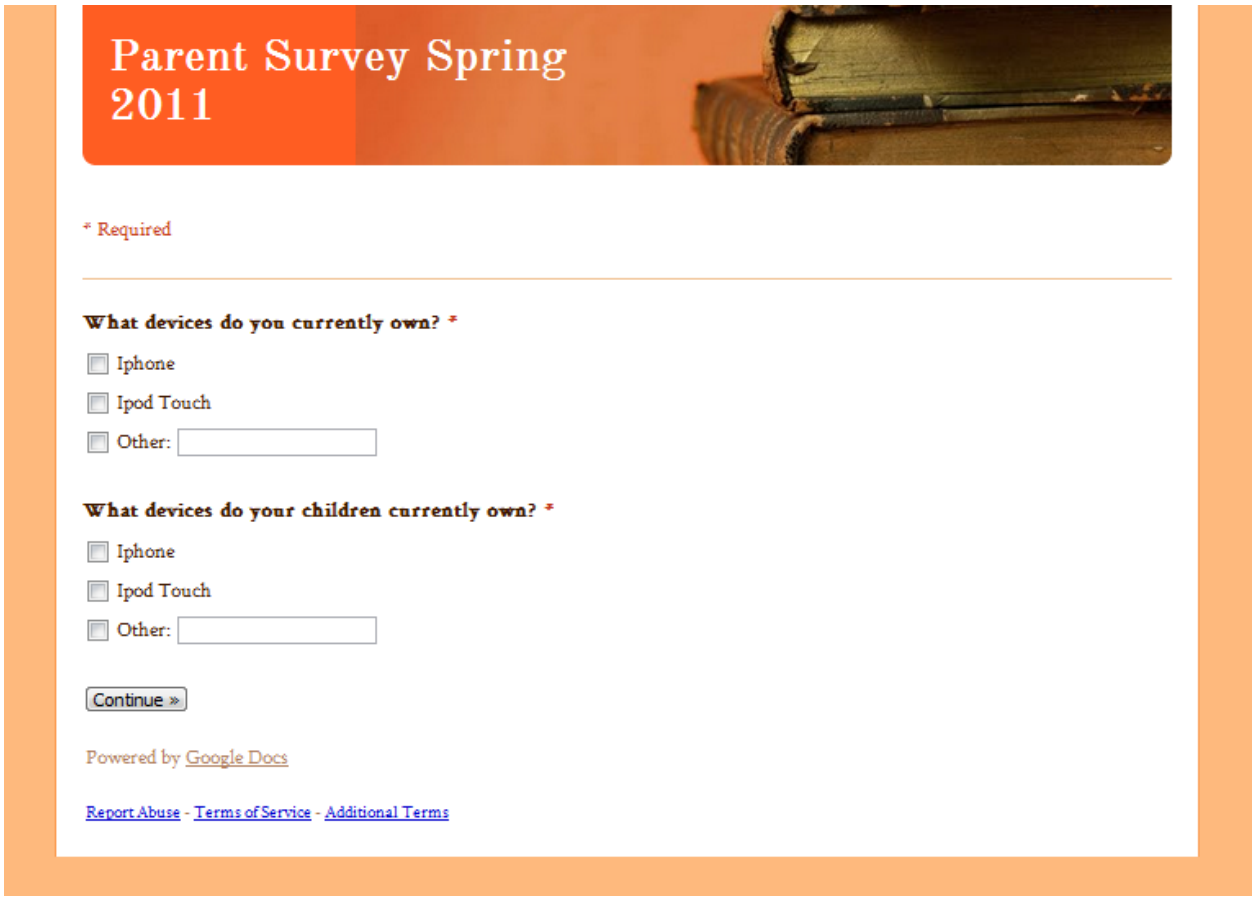
i. When the participant has decided that he or she is not going to drink for the reminder of the time, switch the button that records the data to the database ON.
ii. Select "intoxicated" on the iPod touch.
iii. Have the participant play the Stop Light game 10 times.
iv. Next, have the participant play the Memory game 10 times
v. Finally, have the participant play the Turntable game 10 times

IV. Analyze the Data

a. Analyze the data by performing a t-test.
b. Create data tables and graphs using excel.

Appendix D: Copy of Parent Survey Link

https://spreadsheets.google.com/viewform?hl=en&formkey=dDhQRlB1OFliWGFCbXRXTy1LbTBRdGc6MQ#gid=0



The above image is the first page of the Parent Survey.

Appendix E: Copy of Teen Survey Link

https://spreadsheets.google.com/viewform?hl=en&formkey=dFJpSFFhU3hsajRxbjRlWUktNkx2V1E6MQ#gid=0

Teen Survey Spring 2011

* Required

Please answer the following questions with this situation in mind: YOU ARE LEAVING YOUR HOME TO GO OUT WITH FRIENDS.

My parents know where I am going out. *

1 2 3 4 5

Never ○ ○ ○ ○ ○ Always

My parents know who I am going to spend time with. *

1 2 3 4 5

Never ○ ○ ○ ○ ○ Always

My parents know what activities I will be engaging in. *

1 2 3 4 5

Never ○ ○ ○ ○ ○ Always

My parents know how long I will be out. *

1 2 3 4 5

Never ○ ○ ○ ○ ○ Always

My parents know the location of where I will be. *

1 2 3 4 5

Never ○ ○ ○ ○ ○ Always

My parents can contact the people I am going to spend time with. *

1 2 3 4 5

Never ○ ○ ○ ○ ○ Always

My parents can contact the parents of the people I am going to spend time with. *

1 2 3 4 5

Never ○ ○ ○ ○ ○ Always

My parents know the address of where I will be. *

1 2 3 4 5

Never ○ ○ ○ ○ ○ Always

The above image is the first page of the Teen Survey.