



ESCUELA TÉCNICA SUPERIOR DE INGENIERÍA (ICAI)

GRADO EN INGENIERÍA ELECTROMECÁNICA

Especialidad Organización Industrial

## **Bouncers´ Facility Redesign**

Autor: Miguel de la Esperanza Riesco

Director: Dr. Katie Basinger

Madrid

Junio 2019

**AUTHORIZATION FOR DIGITALIZATION, STORAGE AND DISSEMINATION IN THE NETWORK OF END-OF-DEGREE PROJECTS, MASTER PROJECTS, DISSERTATIONS OR BACHILLERATO REPORTS**

***1. Declaration of authorship and accreditation thereof.***

The author Mr. /Ms. Miguel de la Esperanza Hiesco

**HEREBY DECLARES** that he/she owns the intellectual property rights regarding the piece of work: Bouncers' Facility Redesign

that this is an original piece of work, and that he/she holds the status of author, in the sense granted by the Intellectual Property Law.

***2. Subject matter and purpose of this assignment.***

With the aim of disseminating the aforementioned piece of work as widely as possible using the University's Institutional Repository the author hereby **GRANTS** Comillas Pontifical University, on a royalty-free and non-exclusive basis, for the maximum legal term and with universal scope, the digitization, archiving, reproduction, distribution and public communication rights, including the right to make it electronically available, as described in the Intellectual Property Law. Transformation rights are assigned solely for the purposes described in a) of the following section.

***3. Transfer and access terms***

Without prejudice to the ownership of the work, which remains with its author, the transfer of rights covered by this license enables:

- a) Transform it in order to adapt it to any technology suitable for sharing it online, as well as including metadata to register the piece of work and include "watermarks" or any other security or protection system.
- b) Reproduce it in any digital medium in order to be included on an electronic database, including the right to reproduce and store the work on servers for the purposes of guaranteeing its security, maintaining it and preserving its format.
- c) Communicate it, by default, by means of an institutional open archive, which has open and cost-free online access.
- d) Any other way of access (restricted, embargoed, closed) shall be explicitly requested and requires that good cause be demonstrated.
- e) Assign these pieces of work a Creative Commons license by default.
- f) Assign these pieces of work a HANDLE (*persistent URL*). by default.

***4. Copyright.***

The author, as the owner of a piece of work, has the right to:

- a) Have his/her name clearly identified by the University as the author
- b) Communicate and publish the work in the version assigned and in other subsequent versions using any medium.
- c) Request that the work be withdrawn from the repository for just cause.
- d) Receive reliable communication of any claims third parties may make in relation to the work and, in particular, any claims relating to its intellectual property rights.

***5. Duties of the author.***

The author agrees to:

- a) Guarantee that the commitment undertaken by means of this official document does not infringe any third party rights, regardless of whether they relate to industrial or intellectual property or any other type.

- b) Guarantee that the content of the work does not infringe any third party honor, privacy or image rights.
- c) Take responsibility for all claims and liability, including compensation for any damages, which may be brought against the University by third parties who believe that their rights and interests have been infringed by the assignment.
- d) Take responsibility in the event that the institutions are found guilty of a rights infringement regarding the work subject to assignment.

**6. Institutional Repository purposes and functioning.**

The work shall be made available to the users so that they may use it in a fair and respectful way with regards to the copyright, according to the allowances given in the relevant legislation, and for study or research purposes, or any other legal use. With this aim in mind, the University undertakes the following duties and reserves the following powers:

- a) The University shall inform the archive users of the permitted uses; however, it shall not guarantee or take any responsibility for any other subsequent ways the work may be used by users, which are non-compliant with the legislation in force. Any subsequent use, beyond private copying, shall require the source to be cited and authorship to be recognized, as well as the guarantee not to use it to gain commercial profit or carry out any derivative works.
- b) The University shall not review the content of the works, which shall at all times fall under the exclusive responsibility of the author and it shall not be obligated to take part in lawsuits on behalf of the author in the event of any infringement of intellectual property rights deriving from storing and archiving the works. The author hereby waives any claim against the University due to any way the users may use the works that is not in keeping with the legislation in force.
- c) The University shall adopt the necessary measures to safeguard the work in the future.
- d) The University reserves the right to withdraw the work, after notifying the author, in sufficiently justified cases, or in the event of third party claims.

Madrid, on **12** of **June 2019**

**HEREBY ACCEPTS**

Signed **Miguel de la Esperanza**

Reasons for requesting the restricted, closed or embargoed access to the work in the Institution's Repository

Declaro, bajo mi responsabilidad, que el Proyecto presentado con el título

**Bouncers' Facility Redesign**

en la ETS de Ingeniería - ICAI de la Universidad Pontificia Comillas en el

curso académico **2018/19** es de mi autoría, original e inédito y

no ha sido presentado con anterioridad a otros efectos. El Proyecto no es plagio de otro, ni total ni parcialmente, y la información que ha sido tomada

de otros documentos está debidamente referenciada.

Fdo.: **Miguel de la Esperanza**

Fecha: 10/05/2019



Autorizada la entrega del proyecto

EL DIRECTOR DEL PROYECTO

Fdo.: **Katie Basinger**

Fecha: 20/05/2019





ESCUELA TÉCNICA SUPERIOR DE INGENIERÍA (ICAI)

GRADO EN INGENIERÍA ELECTROMECÁNICA

Especialidad Organización Industrial

## **Bouncers´ Facility Redesign**

Autor: Miguel de la Esperanza Riesco

Director: Dr. Katie Basinger

Madrid

Junio 2019



# Table of Contents

Abstract .....	8
Background & Introduction .....	10
Assumptions .....	12
Data Analysis .....	14
Memberships & Revenue.....	14
Families of Gainesville .....	15
Surveys .....	16
Current Layout.....	20
Proposed Design.....	20
Explanation.....	20
Monitoring Systems.....	22
Bracelets.....	23
Menu.....	23
Budget.....	24
Social and Environmental Impact.....	25
Previous Work and Future Plans .....	27
Theoretical.....	28
References.....	30
Appendices .....	32
Appendix A (Floor Plans).....	32
Current Layout .....	32
Proposed Detailed Design .....	35
Appendix B (Population Data).....	38
Surveys.....	40
Appendix C.....	41
Menu .....	41
Budget.....	41

## **Abstract**

Bouncers is a non-profit organization located in the city of Gainesville, state of Florida, in the United States of America. The focus of this nonprofit is to teach young kids, from 1 to 10 years old, about health, fitness, respect and other important things of life as they grow to become young teenagers.

The idea of growth for this business is somehow attached to its success when it comes to monthly membership fees that families pay in order to use its facility. All of the profit that it collects is reinvested in the facility and the kids. However, the number of families that are members has been stuck in around 100 for the last 3 to 4 years. Without this number growing, the owner does not want to take the risk of upgrading the facility with new amenities and playing areas. The objective of this project is to find a feasible way for the business to keep the families from leaving and attract new families with young kids to sign up.

The business is currently lacking a good and comfortable dining and chilling area for parents to chat and relax while their young children play. Improving this area seems like the most feasible way to reach the objective. Some parents showed their concerns about this area, criticizing this part of the facility and assuring that it is one of the main reasons they do not bring their children more often.

For the aforementioned reasons, this project is going to focus on developing a more comfortable and exciting café area for adults, with some children amenities as well. The idea is to develop high-end and low-end possibilities for the owner to choose from, hand him everything needed to carry out the project if he feels it is worth it and start the process of fundraising.

The final stage of the involves designing a plan to build a café in the main lobby, as well as introducing a new seating area, in the back patio. The spaces will provide adequate seating for the volume of customers on any typical day. The construction requires the patio roof to be sealed,



a new doorway to be constructed, and furniture to be acquired. The café will provide hot drinks and pre-packaged snacks available for purchase. The coffee will be sourced from local Gainesville shops. The design will make sure not to necessitate any additional labor costs to be introduced (the owner required the amount of people working there to stay the same), as the employee running the desk can also man the café. With the addition of this new space for parents to enjoy, Bouncers will see an increase of customer satisfaction and total visits.

## **Background & Introduction**

Bouncers is a family owned non-profit business located in the city of Gainesville, Florida. Kevin Patrick and his wife are the proud owners of this enterprise. Not only that, but Kevin's Mother in Law was the one who founded the place a couple of decades ago. It all started with a little childcare service that is adjacent to the Bouncers' premises, 'A Child's Academy' (ACA). After getting this other business active, she decided that it was time to increase society's quality of life and farther improve children's education in the out-of-school matters. This also encouraged families to move to a growing, University focused city like Gainesville.

The focus of the company is educating families about health, lifestyle and exercise for children. This is done via events, content, scholarships and educational seminars [BOUN]. Bouncers has a 15,000 square foot facility, and it offers families an Indoor Playground with entertainment. It is a place parents can book for a birthday party, hold a fundraiser, host a private group party, but most important of all, a place for their children to play with other children in a safe environment.

Currently, Bouncers is mainly an indoor facility, but has the potential to expand and create a bigger park for children to play in. They have different goals that need to be achieved before this expansion can take place. Another factor that affects this situation is the fact that it is a Non-Profit. However, they need to raise money to pay the bills. This is done by monthly membership donations, that allow unlimited access to the playground areas on weekends and holiday breaks. They chose this business model because they focus on building a community space for families to come together, play together, and have fun and learn together. The model is also based on parent feedback as they do not enjoy operating under the normal pay for play transaction, like any other kid focused businesses. The financial aspects and other goals will be treated later in the report.

While the children love the facility. As seen in the photos in Appendix A of this document, this establishment is the dream place that every adult wished for when they were kids. However, right now there is not much of a draw for the parents to want to stay. The main problem to be addressed is to find a way to make parents enjoy the facility more.

All people, no matter their age, have certain needs which can't be denied with negative consequences. While you must take care of your physical needs, you also need a degree of intellectual stimulation of some sort. Yet, the most important needs that parents have (specially with their first neonate) are social contact with other people so as not to feel isolated with the baby's necessities, and emotional demands so as to feel loved and appreciated [TCPE]. There is a direct correlation between high stress and unmet needs. If a parent feels depleted, exhausted, drained, and burned out, they will not feel like taking care of their children's needs. A study carried out by Pew Studies Center Analysis [FOLG17] proved that a higher percentage of parents find taking care of their children more strenuous than even their day-to-day jobs, especially if it is a newborn or an active toddler.

The project involves the development of a place for parents to have an enjoyable time while their children play in the facility. By doing this, they will be able to spend some more time outdoors, while drinking a warm beverage and relaxing at the same time their kids are entertained. This is a great way for parents to battle the exhaustion. This café's purpose is to accomplish this task.

## Assumptions

Bouncers is not a very big enterprise with close to infinite funds but a non-profit whose goal is to create a healthy community of families that befriend each other since their children's young ages. Due to this lack of resources, there are some restraints that need to be considered when developing a project for this type of businesses.

The following are the assumptions and design constraints that will be used when creating the proposal for the Bouncers Café:

- The main constraint of a project, as it is for most, is the budget. Bouncers business model is based on monthly contributions by the families that are members. This is enough to pay the invoices, and maybe start a little nest-egg for future projects to get started. However, this only pays for two staff members to be around, one in the check-in area and the other one around the play area. This means, that while in the premises, parents are fully responsible for their children, and thus, they must keep an eye on them almost at every time. This money constraint can be broken up in two other constraints.
  - o The first one is the budget for the project. As a non-profit, this project will be carried out by donations of the community and some other sponsors that support the cause of Bouncers and what they believe in. Therefore, the budget for this project needs to be as low as possible. However, we do not need to consider the cost regarding the technology needed (such as TVs, Coffee Machines, etc.), labor, and some furniture because it will all be donated by the local community.
  - o Parents need an adequate way to monitor their children. Bouncers is a safe place for children. However, at this very moment, parents monitor their kids while they play in the facility. This new idea for the café will need to find a solution to this problem so parents can monitor their children while socializing.

- There will be some special requirements the city of Gainesville will on the project in order to obtain the building permits that of course will be addressed. Being this a small city full of students, the process of getting the different permissions takes a little longer than in large cities, so getting in contact with local contractors, who know how everything works and how to accelerate the process, will be of some importance.

Moreover, being this a building that focuses on children amenities, there are some extra safety regulations that will need to be taken care of. In this regard, the building code will be strict to ensure their safety. This is also another constraint of the project design as what will be developed needs to be children friendly too, for everyone's wellbeing.

- Bouncers currently sells some prepackaged snacks, merely for the children, and all sugary. Getting to the point, what this means is that either the business does not need a permit to sell this type of products or they have it already. Therefore, there is no need to worry about this matter as it is already in place. On the same page as this, a background research confirmed that products like coffee and other warm drinks can be served with no permit needed.
- This café will provide products for both the parents and the children. As mentioned before, it currently sells prepackaged snacks, focused merely on the kids. In anticipation of the Data collected, some parents are showing their concern about no healthy alternative to these snacks, and consequently, the need to leave early some days so the kids can have a proper meal. They are showing a bigger concern about their children's nutrition than about their own, although they also insist in bringing more variety bearing them in mind.

- Bouncers currently has some security cameras all around the facility. There are some slots left for different cameras that could be used in case we wanted to add some cameras for monitoring reasons.
- This business employees a small number of workers, and it is meant to keep it that way. This is why all the payments made in the café are currently made by credit/debit card, and no cash is accepted. The main reason for this is that cash implies the necessity of a manager that takes care of the accounting part of the cash payments, and this would mean another salary.
- The last assumption to be made is that all the revenue gained from Bouncers is a quantity that compares to the costs the facility requires. Therefore, the assumption is that the profit of the non-profit is close to zero and that all they make goes for future projects of expansion or is given back to the families in terms of events and/or other type of form that ends up in the children's benefit.

## **Data Analysis**

To begin this section of the report something must be clarified, and that is that due to the nature of the project, there is not a lot of hard data that can be used in order to come up with the best Café possible. Being the project in a small city, with not so many member families (as seen in the following section), a statistical analysis or a mathematical evaluation of the project was out of the picture. The only hard data we took was the dimensions of the area that best suits the café's location.

## **Memberships & Revenue**

The topic of memberships needs to be covered the first one in order to answer the great questions: "How is Bouncers Financed?". Most of its revenue comes from the monthly

membership fees families have to pay in order to gain unlimited access to Bouncers, discounts for camps and events, and free access to pre-determined content and educational seminars from its Donors, Supporters and Business Partners [BOUN]. As seen in Table 2 (Appendix B), the average monthly fee per family is \$40. This number rounds up the special treatment families that signed up earlier got, with monthly fees of \$35 or \$40 (depending on how early they signed up), the additional \$5 per sibling over the 2 included, and the extra \$10 paid for a one time visit of guests/friends. Taking into consideration that right now there are 105 families enrolled in the membership program, the average monthly revenue is \$4,200. If we add up the weekly (turned to monthly) revenue from the purchases in the current stand of snacks, it rounds up to a Total Monthly Revenue of \$4,630. Another fact worth mentioning is that this membership dues are considered as a donation to a nonprofit, so the dues are tax deductible to the fullest extent allowable by the law of the United States of America.

In one of the meetings with Kevin, the owner, he mentioned that this pretty much gives them enough to meet the costs of running the business. In addition to this, sometimes they gain a little profit that they save for future projects or events in order to give back to the community. They also are creating a small piggy bank account for the expansion of the business. Right now, the membership is not creating much profit, so they need to increase the number of affiliated families to the program. This is one of the main reasons for this project, to increase the business attractiveness to new families and enhance a good word of mouth. This is also why the project would be carried out by the generous contributions of families (monetary and labor) and local businesses that are keen on giving back to the community.

## Families of Gainesville

The next piece of important Data is the population of Gainesville and its distribution. All the different numbers are in Table 1 (Appendix B). As we can see, there are around 5000 kids under 5 years old, and other 5500 whose ages go from 5 to 10 years old. This adds up to 10500 children

that can turn to Bouncers' clients. This means that the possibility of increasing the number of families enrolled is real. As shown in Figure 11 (Appendix B), the best days of the week for Bouncers are Saturdays, with an average of 65 families per week, and Sundays, with an average of 45. The cause for this is that the number of childcares in Gainesville that have also Weekend services is just 22% of the ones opened during weekdays. This means that Bouncers should first focus on these families and then try to reach a bigger market share in the weekdays.

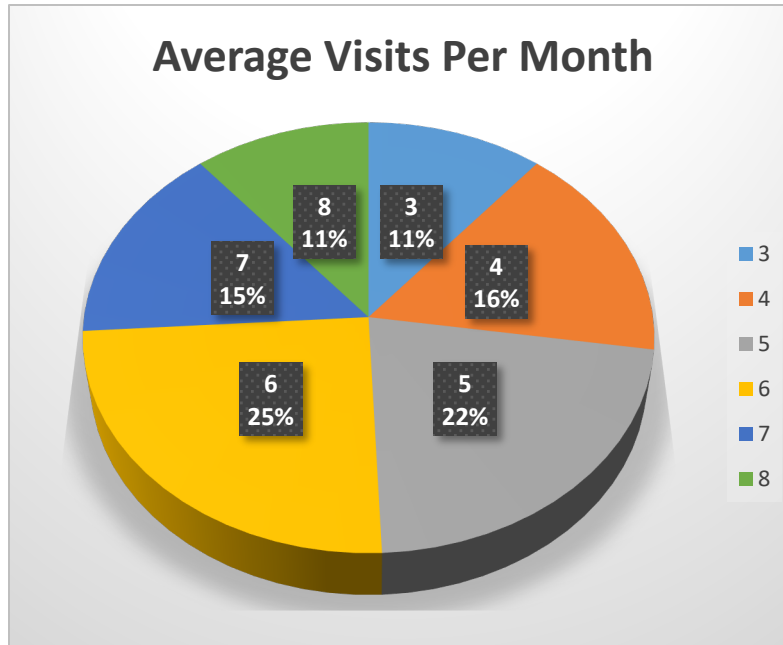
In addition to this little market focus analysis, the fact that Gainesville is the city of a great school such as the University of Florida should also be mentioned. This is important because many professors live in the city, and if they have families with little children, they are going to require the services of a childcare while they teach the future of the country. It is also important because it means that close to a 40% of the population is composed of students, which could serve as labor, or in our case, as a way to improve the city's businesses and give them a hand on the different concerns they may have.

## Surveys

One of the best ways to get relevant and reliable information for this project was to carry out a survey within the families that will be directly affected by the construction of this new café. Unfortunately, the survey did not catch the attention of all the families that are members of the loyalty program, but we got a hold with 73 of them, which makes it more than 50% (69.5% to be exact). The main questions that were asked in this survey were: "Average Visits Per Month", "Would You Use This Café?" and "What other products would you like to be available for purchase in the café?".

Regarding the first question, the following graph shows a summary of the answers (more detailed data can be found in the Surveys Section of Appendix B.





*Figure 1: Average Visits Per Month (Families)*

The most common answer is 6 times a month, and some of the parents even bring their children a total of 8 times. As mentioned before, the fact that there is no comfortable place for adults to stay and wait while their children play is a very important fact when looking at these numbers as it is one of the main reasons that some parents do not go to Bouncers as much as they would like to. Another important fact to look at is that these numbers make sense if we think about weekends. There is an average of 4 weekends a month, and being them 2-day weekends, this would make an average of 8 days to visit Bouncers, which is the most that some families visit the business in one month.

Regarding the fact that some parents are not comfortable with the facility in terms of adult friendly, we reach the second question in our survey: “Would You Use This Café?”. The following is a summary of the answers:

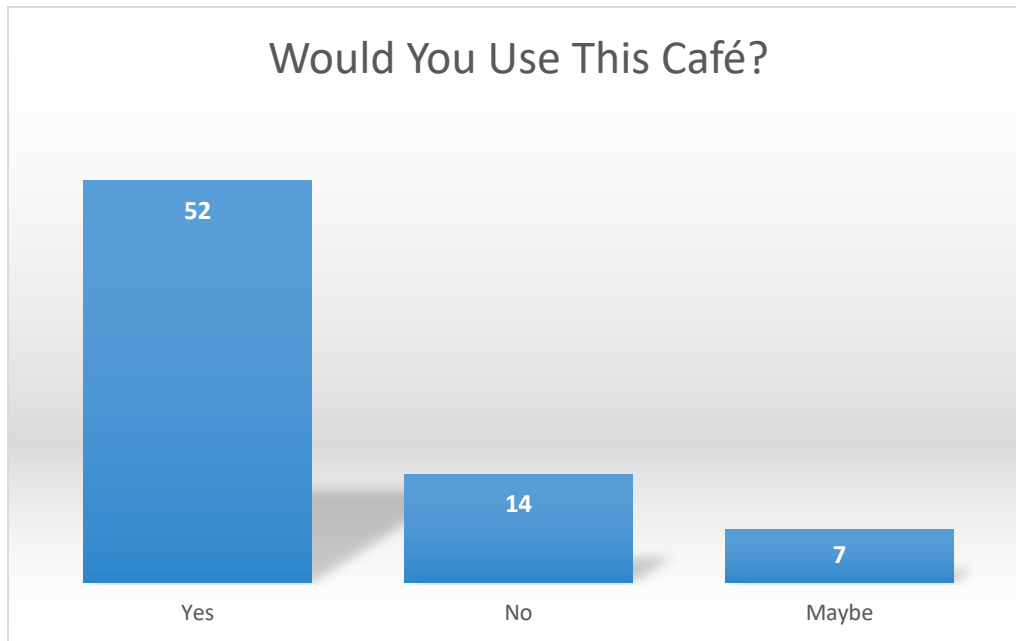


Figure 2: Answer to: Would You Use This Café? (Families)

Looking at these answers it is surprising that 19% of the families answered that they would not use it, and other 10% were in doubt. Going further in why they would not use it, they stated that having very small children (ages of 1 to 2 years old) made them more worried and had to pay more and better attention to them. This is a very short-term thinking, as the answer of the ‘Maybes’ was similar but with a thought of the future, as they stated that they would not use it right now, but they will sure be happy in a couple of years when their children are more self-dependent and do not need an eye on them at all times. Therefore, we can assume that at the end, all of the families will be more than happy to have this café in their lives and that it will boost the business’ membership program.

After answering the first two questions, we asked the families what coffee types they would want to be offered, and what other products they would like to be available for purchase in this establishment. The following graph and list show the most common answers to these questions:

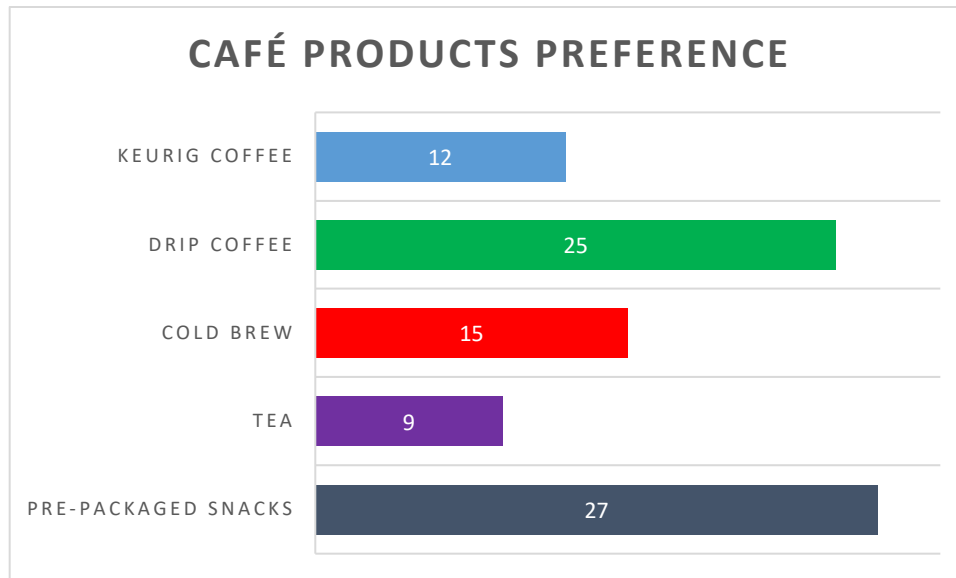


Figure 3: Café Products Preference

To begin with, apart from coffee products, they would love some pre-packaged snacks. Some are already offered in Bouncers, but most of them are very sugary and unhealthy. In addition to this, many wanted normal coffee, and 9 of the family members that filled out the survey asked for tea. Regarding the Cold Brew, a management decision was made to suppress this option as it takes way too long to make, and it is not worth the trouble. As a result of this answers, a machine that is both capable of brewing coffee and also dispensing very hot water for tea options.

Some of the other options that families asked for were things such as Baby Puree Pouches, Hot Chocolate, Hot Cocoa, Herbal Tea, Lunch Options, Fruits and Hot Food. This indicates that many of the families are mostly interested in seeing food options, mainly because they dislike having to leave Bouncers in order to get food elsewhere. However, since hot foods would probably imply installing a kitchen and another staff member, this project focuses primarily on the snacks portion of the menu and set out to find nutritious, yet likeable, options that would appeal to the majority of the parents and children.

## Current Layout

In Appendix A there is a CAD Model of the current layout of the business, with some pictures of the inside and the outside. It is observable that the amenities offered inside are really limited. It currently has a little table with chairs for little children to stay entertained while their parents do the check-in on the counter at the far end of the room. The snacks offered are barely noticeable. These are two of the main problems this project is trying to solve, with the whole distribution of the indoors, trying to optimize the use of the space they have for parents.

The outdoors space is currently being used as storage for raw materials and different construction tools. This is a waste of space, especially with the huge garden the facility has. The long-run objective is to expand the amusement sites to the outdoors as well, so it would be unsafe to have all those dangerous objects rolling around while kids play. Moreover, during sunny days (after all, Gainesville is in Florida), it would be a great place for parents to relax.

## Proposed Design

### Explanation

This part of the report will explain the different changes that have been carried out. The graphical proof and designs are in Appendix A.

In term of the structure and important construction differences, the main thing will be the door. In Figure 3 (App. A) a window currently stands at the end of the room. This window currently has views of the outdoors area, which at the moment has no easy entrance. The plan is to take advantage of the existing frame of the window and make a door out of it, so the patrons can have a better access to the outdoor area. Another important construction difference has to do with the outdoors' roof. Kevin, the owner of the place, has shown concerns about the

outdoors roof and the low quality and impermeability it has. Therefore, this should be fixed, which will involve bringing a contractor to seal it (costs are incurred in the budget section).

The indoors area has been redistributed in order to get a better interior design, with some high-end touches and trying to create a better environment more adult oriented than kid friendly. Apart from the door and the outdoor roof, the rest of the design is meant to be done in a modular way. What this means is that there is no definitive design, just an idea, so the client can choose from the different quality options provided, what they find most suitable for the business based on economic and social reasons.

The first thing the design focuses on is lighting. The more research is carried out around the effects of lighting, the more they discover that lighting has a deep impact on our lives. Studies are suggesting that lighting effects numerous biological, mental, and emotional factors, and it even directly contributes to our mood and productivity [LIGH18]. The design proposes a new lighting system trying to recreate what it would be natural light. Researchers believe that exposure to natural light helps our bodies stick to their natural circadian rhythms, so that they know when to feel alert and energetic and when to feel sleepy. It even helps reduce symptoms of depression [MEFL18]. This lighting arrangement also tries to harmonize the outside with the inside of the place, so when you are indoors, you do not feel like you are trapped and you do not know what is going on outside or how much time you have spent inside (just the opposite effect that the Vegas Casinos want, which is the main reason why they do not have any windows). Since the only natural light that will come inside does it through the doors, a natural light ambient will help create a better and more comfortable environment.

The next concern of the design is the sound. Parents of the community have shown dissatisfaction with all the noise that the place generates, because at the end, they are the ones dealing with it. The sound absorbent furniture proposed is meant to take care of this issue. In the Proposed Detailed Design section of Appendix A, there is a graphical representation of what the

inside might look like when the remodeling is all done. Looking at the roof, there are three lengthwise plates, which are made of sound absorbing material like in the recording studios. Moreover, this technology is now being included in some art (Sound Absorbing Wall Art), and the paintings hanging on the wall are also intended to help this cause.

As mentioned before in the report, parents do the check-in at the far end of the room, where the window currently is. However, that is the place where the door is going to be installed, so it would block the passage. Moreover, being the check-in so far and so deep into the room, the atmosphere of the room gets intense, especially if a queue is created. This is one of the main reasons why the new check-in counter will be right in the entrance, trying to speed up the process and differentiating in between the people inside, ready for the adventure, and people still getting in. Check-in time has never been a problem for the business, and in case this starts creating long queues, the fast and feasible solution for this problem will be installing a third computer.

The rest of the design is merely new furniture and machines. The design merely shows the optimal distribution of the couches in terms of transit and space available for people to be comfortable. As stated before, there are multiple options offered to the client in terms of quality and brands for them to choose what better suits them. The surveys helped us gather information about what parents wanted to drink and eat, and that is the main reason of the coffee machines.

## Monitoring Systems

Bouncers is a children facility. These kids' ages range from 1-10 years old. In addition, Bouncers employs only two people to run the business while it is open, one is behind the counter, taking care of the café, the check-in, and administrative concerns, while the other one walks around the play area making sure that nothing goes terribly wrong. However, this last person is not in charge of monitoring the children, but parents are. This was in fact one of the biggest

concerns the owner had before the initiation of this project. He did not know whether parents were going to enjoy it as much knowing that they also need to watch out for their children.

Trying to find a solution for this concern, the design proposes the idea of monitoring the children through a live feed of the interior of the play area with video cameras. This way, with the help of the employee, parents can relax calmly knowing nothing bad is happening to their child. Some parents with really young children will still be right by their side, but the ones that have children that can take care of themselves, can let them enjoy their freedom. In addition to this monitoring system, another form of communication in between children and parents can be implemented, with bracelets.

### Bracelets

You might be wondering how a bracelet can help a parent feel more comfortable not keeping a direct eye on their children. Well, these bracelets have two features. The first one, is a distance alarm by which if the children gets farther from a set distance from their parents, it will send an alarm letting them know. This aspect of the bracelet is not very useful in Bouncers as it is a close space and setting an alarm for distance will not be helpful but annoying. The second feature that these bracelets have is a panic button. Were the children to push this button, an alarm will go off in their parents' phone letting them know their kid needs them because they are in danger or they are just not feeling comfortable.

With the bracelet, monitoring system, and an employee moving around the play area, parents should be more than calm when it comes to watching out for their children, and then they really can enjoy a cup of coffee relaxing with other parents.

### Menu

The current menu has only sugary and unhealthy food and drinks that parents do not want to buy for them or for their children unless it is completely necessary. The intention of this project is also to bring another menu with new and healthy products. This process required

talking to many different suppliers around Gainesville, as it is important to keep it within the local businesses for shipping and commodity reasons.

On Appendix C a graphical representation of the intended menu is shown. Options like coffee, tea, some juices, and even bottled water are offered in the beverage section. On the other hand, the snacks that can be purchased include Pita Chips, Vegan Muffins, Pretzel Sandwiches and even Granola Bars (this was one of the main requests in the surveys). The prices shown have a little markup from the price at which the facility will buy them, just so other costs can be covered. Moreover, the profit made at the end of each month will be invested back in the business for the children.

One thing that might be a problem is the serving coffee process. It takes a lot of time for the employee in charge of charging all the customers and it slows the purchasing process a lot. A solution for this might be that people get to buy cups, or even bring them from home, and just have an unlimited supply of coffee. This might be a very simple way for the nonprofit to give back to the parents. It would accelerate the process a lot, and parents can even bring their own mugs, reducing waste of cups.

## Budget

This section might be one of the most important of the project. The answer to how much is all this going to cost. The answer is not simple. As stated before in this report, this project involves a modular solution. This means that there is no final design for the café in terms of the furniture and machines that will be bought, but just a layout of the ideas and different options for the client to choose from. These different options have different prices depending on the quality or the brand of the furniture chosen. Some may be more comfortable and stylish, but others can be more suitable for children attacks.



Appendix C has a breakdown of the different options, being the cheapest remodeling a total of \$5.041,52 and the most expensive a total of \$15.869,22. These numbers mark the range of prices that the project would cost. The final decision must be made by the owners and the parents, who are the ones that are going to finance it.

## **Social and Environmental Impact**

A nonprofit organization is a business granted tax-exempt status by the Internal Revenue Service (IRS). Donations made to a nonprofit organization are typically tax deductible to individuals or businesses that make them. These are the ones that our project relies on in order to succeed. On the other side, nonprofits must make financial and operating information public so that donors are certain their contributions have been used effectively. Nonprofits pay no income tax on the donations they receive or on any money they earn through fundraising activities [KENT18]. The purpose of them is providing a public benefit, and its goal is to serve and enhance the local community. The purpose for this project, as a future engineer, is to give back to society. By improving a nonprofit organization, such as this childcare, an impact is created on those families that visit the establishment regularly, and that are, after all, the main stakeholders of Bouncers.

Bouncers' goal is to promote a healthy and active lifestyle for children by educating families through different events and seminars and by providing a fun and engaging environment for the youth. In a generation in which children live sedentary lifestyles, spending over seven and a half hours per day in front of a screen [PCSFN17], and childhood obesity is at an all-time high [CDCHS18], Bouncers seeks to provide a unique solution for the local families of Gainesville.

There has been a lot of controversy in between different psychologists regarding technology and education. There are two basic sides. First, the one in favor of using technology, at every time, during the early years of education. They defend that what children are doing is not losing themselves, but potentially finding themselves. What's more, they are doing exactly

what generations of kids have long done: Immersing themselves in toys and objects of the moment that reflect the society they inhabit, and which will help prepare them for the future [ANDE19]. On the other hand, some researches still believe the use of technology may impede children's social, emotional, physical, and cognitive development [SIGD17]. Generation Z, as a group of youngsters that were raised with limited technology, are still believers of playing outside and develop yourself understanding the world around you, creating a social world, face to face, with your surroundings. Moreover, as the Finnish government and people think, as they developed their educational system, which is considered the best in the world, school is not mandatory until the age of 6. It is just a way to let a kid be a kid [COLA18], and that is what we are trying to do here with Bouncers: Expanding its attractiveness to create a wider community of children that want to have fun in the real world like the kids they are.

The addition of the café and back patio will further help the cause mentioned in the past paragraph. By providing the parents with a comfortable area in which they can unwind and enjoy their favorite beverage or snack, while engaging conversation with other parents or just getting a quick breath of fresh air, they will be more inclined to spending more time at Bouncers, a place where kids that have tried it want to go back. More time at Bouncers means the children will have more time to be recreationally active, which fosters a healthier lifestyle for children in the community. What is more, this café will eliminate the hassle and time needed for the parents to purchase a beverage elsewhere, which in turn allows them to spend even more time at Bouncers.

In addition to the aforementioned benefits that the café will bring to the families, it will also benefit the environment in several ways. With our coffee grounds, it is important to look for a local source for these supplies. By sourcing our coffee supply from local vendors, there is decrease in the food miles associated with procuring the product. Food miles are defined as the distance a product needs to travel to reach the consumer [WEBB08]. Buying locally greatly reduces these miles by requiring less transportation, which means less fuel consumption and air

pollution, and therefore, less carbon footprints on our environment. Additionally, there is a desire to use environmentally friendly supplies to serve the beverages, such as recyclable or compostable coffee cups and lids.

Another thing important regarding the fact that the café will be sourcing from local businesses is that they contribute to local economies by bringing growth and innovation to the community in which the business is established [BROW18]. As mentioned in the Data section of the report, Gainesville is a little city with close to 150,000 students. These local businesses not only help keep the city and the University (University of Florida) in place, but also help stimulate economic growth by providing employment opportunities to people who may not be employable by larger corporations, including some students. Moreover, small businesses tend to attract talent who invent new products or implement solutions for existing ideas. Larger businesses also often benefit from small businesses within the same local community, as many large corporations depend on small businesses for the completion of various business functions through outsourcing [BROW18].

## **Previous Work and Future Plans**

Because Bouncers is a non-profit organization, being cost efficient has been a priority for many of the past construction projects. Bouncers has a few approaches to maintain a lower cost. Firstly, many of the donors come from different industries in the Gainesville community. Some of which are useful to the project at hand. For example, the stools parents currently use for seating were acquired at a very low cost from a donor with connections to a furniture supplier. The second technique Bouncers has used to save money is building and constructing the items need in house. At bouncers there is a work shop that can be used to build a variety of items. Many of the tables and counters in the facility were build in house. We intend to use both techniques to provide the best café for the most reasonable price.

*“Start Small and Dream Big”* – Robert T. Kiyosaki. This project focuses on increasing the business’ allure for parents, so their rate of visits increases and the number of families with membership in Bouncers grows as well.

The proposed design is a hope for a brighter, better and bigger future of Bouncers. The facility has a great outdoors area that is unused. They want to carry on with the improvements of the place in the outside after this first project is successful. However, they have some restrictions. These include the low budget to carry out big projects, and what is more important, they feel they need more families to join their membership program. They want to reach at least 200 families before carrying on with the expansion. In this matter they have really exiting goals and ideas for the outdoors area such as building a Church for spiritual guidance, a Ropes Course, an Obstacle Course, a Covered Event Pavilion and an Outdoor Trampoline Area.

## **Theoretical**

Parenthood is no easy task. During the pregnancy period of your child (this happens mostly with the first born), there are some changes that parents face so that they become more aware and ready for their, yet to come, new lifestyle. These changes mainly include a change in hormones, as your brain tries to prepare you emotionally [HDN14]. Moreover, your attention for baby’s needs sharpens, you start feeling and thinking work hand in hand for caregiving. As mentioned before, a study carried out by Pew Studies Center Analysis [FOLG17] proved that a higher percentage of parents find taking care of their children more strenuous than even their day-to-day jobs. However, 62% of the participants found this task more fulfilling, personally, for only the 36% that enjoyed more their careers.

“Walking, in particular, triggers a cascade of milestones. And since most children begin to walk around the one-year mark, this is when you will really start to see some big social milestones occur,” says Heather Wittenberg, Ph.D., a licensed psychologist specializing in child development. These milestones are important because they prepare a child to manage personal feelings,

understand others' feelings and needs, and interact in a respectful and acceptable way [DIPR12]. At age 1, children begin basic communication, start recognizing familiar people, and try to interact with you by showing their willingness and ability to engage with others. Age 2 is a little bit more complex, as it is the age when they begin to socialize. As Dr. Wittenberg states "There is not a lot of interactions with kids at this stage, but it is still important to give your child time with other kids". This is also the age when they start defending their territory (e.g. fighting over toys) and extending relationships to other people. At age 3, children tend to seek out others. "It is important at this stage to give your child plenty of opportunities to spend time with peers," Dr. Wittenberg advises. They start to use and develop their imagination with creative activities. It is also the time when they start to understand emotions. "Your child will also make friends based on mutual interests," says Dr. Kalpidou, Ph.D. Associate Professor of Psychology for Assumption College. Finally, at age 4 they start showing interest of being part of a group, they share and cooperate more with others and they are physically more affectionate [MACMH].

As mentioned before, parenthood is like no other job. It takes 24 hours a day, 365 days a year. It is a constant work that might, at some point, overwhelm different parents. It is stressful, no doubt about it. The problem comes when this stress gets out of hand and triggers the fight, flight, or freeze stress response [MCLA17]. One of the many ways in which parents can overcome these difficulties is by going outside, enjoying life while getting a few minutes of fresh air therapy. However, there are times when you cannot carry this out because you still need to take care of your children (remember, it is a nonstop job). This is one of the main reasons we want to improve the amenities offered in the café, so parents can get a little time off their duties and enjoy a good time talking to other parents about parenthood or any other topics they may feel like talking about. As Thich Nhat Hanh said: "If in our daily life we can smile, if we can be peaceful and happy, not only we, but everyone will profit from it. This is the most basic kind of peace of work."

## References

- [BOUN] Bouncers, "Gainesville Bouncers," [Online]. Available: <https://www.gainesvillebouncers.com/>.
- [TCPE] The Center of Parenting Education, «Your Needs Matter, It's Okay to take a turn: Growing Strong Families,» [En línea]. Available: <https://centerforparentingeducation.org/library-of-articles/focus-parents/parents-needs/>.
- [FOLG17] A. C. Folgado, «El cuidado de los hijos es mucho más agotador que el trabajo: Guía Infantil,» 10 July 2017. [En línea]. Available: <https://www.guiainfantil.com/blog/familia/el-cuidado-de-los-hijos-es-mucho-mas-agotador-que-el-trabajo/>.
- [LIGH18] Lights, «How Lighting Affects Your Mood and Productivity,» 18 April 2018. [En línea]. Available: <https://www.lights.com/how-lighting-affects-mood-productivity>.
- [MEFL18] Mental Floss, «6 Ways Light Can Affect Your Emotions,» 2018. [En línea]. Available: <https://mentalfloss.com/article/88046/6-ways-light-can-affect-your-emotions>.
- [KENT18] W. Kenton, «Nonprofit Organization,» 2 May 2018. [En línea]. Available: <https://www.investopedia.com/terms/n/non-profitorganization.asp>.
- [PCSFN17] President's Council on Sports, Fitness & Nutrition, «Facts & Statistics. US Department of Health & Human Resources,» 26 January 2017. [En línea]. Available: <https://www.hhs.gov/fitness/resource-center/facts-and-statistics/index.html>.
- [CDCHS18] CDC Healthy Schools, «Childhood Obesity Facts,» 29 January 2018. [En línea]. Available: <https://www.cdc.gov/healthyschools/obesity/facts.htm>.
- [ANDE19] J. Anderson, «A Philosophy professor argues kids should use more technology, not less,» 10 January 2019. [En línea]. Available: <https://qz.com/1516875/a-philosophers-case-for-letting-kids-play-video-games-and-embrace-social-media/>.
- [SIGD17] S. Sigdel, «Technology and Learning Capacity of Children: A Positive Impact of Technology in Early Childhood,» Johnson & Wales University, Providence, 2017.
- [COLA18] M. Colagrossi, «10 Reasons Why Finland's Education System is the Best,» 09 September 2018. [En línea]. Available: <https://bigthink.com/mike-colagrossi/no-standardized-tests-no-private-schools-no-stress-10-reasons-why-finlands-education-system-in-the-best-in-the-world>.
- [WEBB08] C. Webber y S. Matthews, «Food-Miles and the Relative Climate Impacts of Food Choices in the United States,» 16 April 2008. [En línea]. Available: <https://pubs.acs.org/doi/full/10.1021/es702969f>.

- [BROW18] J. M. Brown, «How Important Are Small Businesses to Local Economies?,» 15 October 2018. [En línea]. Available: <https://smallbusiness.chron.com/important-small-businesses-local-economies-5251.html>.
- [HEND14] E. Abraham, T. Hendler, I. Shapira-Lichter, Y. Kanat-Maymon, O. Zagoory-Sharon and R. Feldman, "Father's brain is sensitive to childcare experiences," 8 July 2014. [Online]. Available: <https://www.pnas.org/content/111/27/9792.short>.
- [DIPR12] L. Diproperzio, «Social Development Milestones: Ages 1 to 4: Parents,» 2013. [En línea]. Available: <https://www.parents.com/toddlers-preschoolers/development/social/social-development-milestones-ages-1-to-4/>.
- [MACMH] Minnesota Association for Children's Mental Health, «Los niños y la salud mental,» *Hojas Informativas de la salud mental en la infancia temprana*.
- [MCLA17] K. McLaughlin, «9 Things To Do When You're Overwhelmed By Motherhood,» 2017. [En línea]. Available: <https://pickanytwo.net/overwhelmed-by-motherhood/>.

# Appendices

## Appendix A (Floor Plans)

### Current Layout

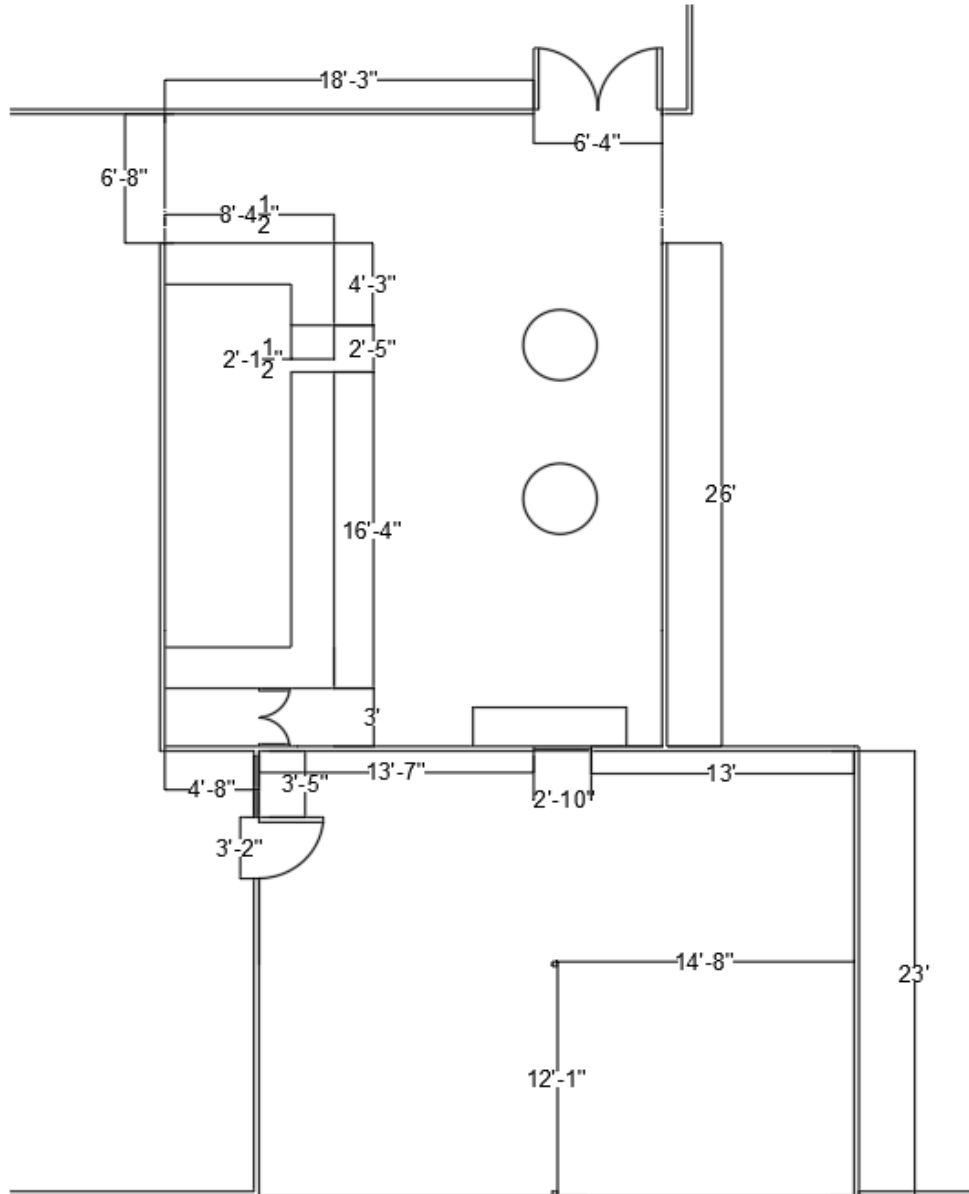


Figure 4: CAD Figure with Measurements of the space allocated for the Project



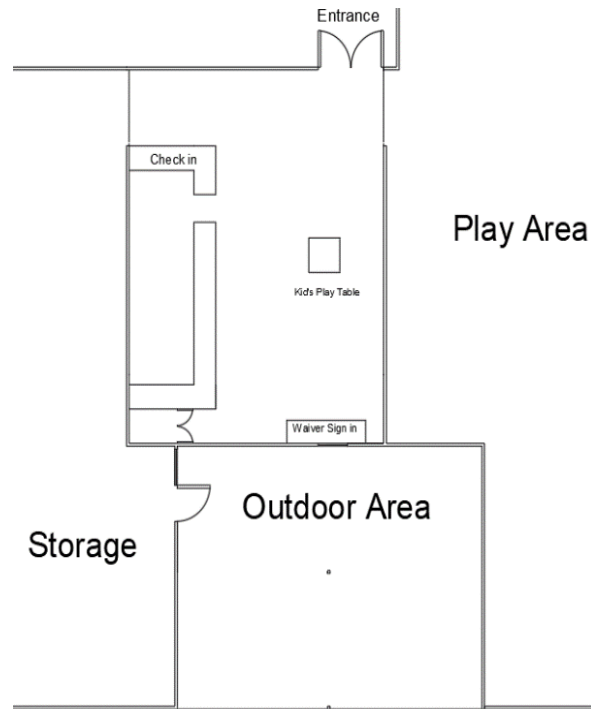


Figure 5: Different Areas of the Café



Figure 6: Photo of Current Situation Indoors



Figure 7: Second Photo of the Current Situation Indoors



Figure 8: Photo of the Current Situation Indoors

Proposed Detailed Design

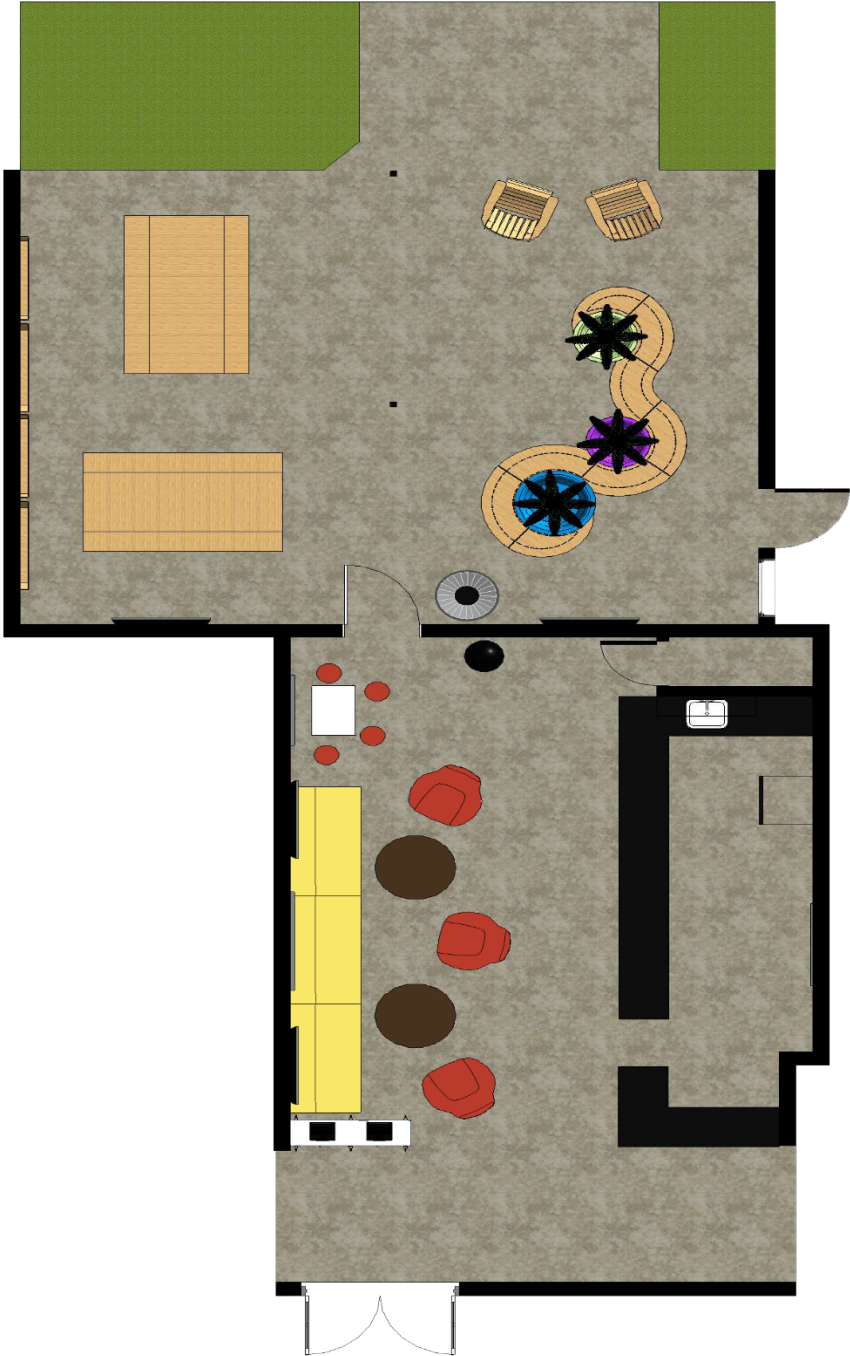


Figure 9: Proposed Design Overview



Figure 10: Proposed Design Indoors (1<sup>st</sup> Perspective)



Figure 11: Proposed Design Indoors (2<sup>nd</sup> Perspective)



*Figure 12: Close look to Kids' Area of the Café Indoors*



*Figure 13: Outdoors Proposed Design*

Appendix B (Population Data)

<b>Gainesville</b>		
<b>Data</b>		<b>Total</b>
Population		132249
Under 5 Years	3,80%	5025
From 5 to 10 Years	4,20%	5554
Female	52,00%	68769
Households		48993
Persons per Household		2,32
Households with Computer	90,00%	44094
High School Graduates	91,50%	121008
Bachelor's Degree Graduate	43,10%	56999
Median Household Income		\$34.005
Number of Childcares in Gainesville (Weekdays)		18
Number of Childcares in Gainesville (Weekends)		4

Table 1: Population Data of the City of Gainesville

<b>Bouncers</b>			
<b>Weekday</b>	<b>Schedule</b>	<b>Av. Families</b>	<b>Estimate Average Spent</b>
Monday	Closed	0	\$ 0
Tuesday	09:00 - 12:00	6	\$ 4,06
Wednesday	16:00 - 18:00	5	\$ 3,38
Thursday	Closed	0	\$ 0
Friday Morning	09:00 - 12:00	5	\$ 3,38
Friday Events	14:00 -18:00	33	\$ 22,31
Saturday	10:00 - 18:00	65	\$ 43,95
Sunday	12:00 - 18:00	45	\$ 30,42
Total		159	\$ 107,50

Table 2: Average Weekly visits and purchases of Bouncers

<b>Memberships</b>	
Average Monthly Fee Per Family	\$40
Number of Families that are Members	105
Average Monthly Revenue	\$4.200
<b>Total Monthly Revenue (with purchases)</b>	<b>\$4.630</b>

Table 3: Memberships and Total Revenue (Monthly)

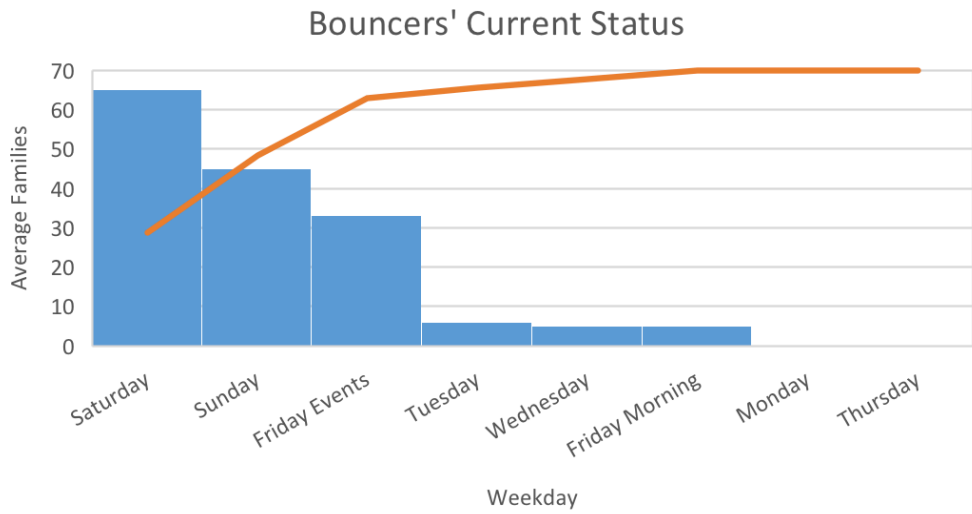


Figure 14: Bouncers' Current Visits

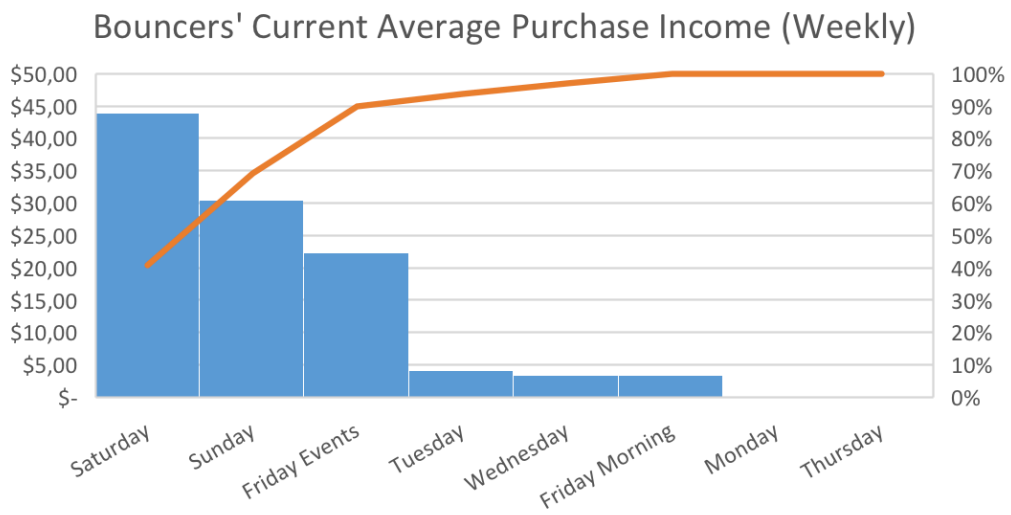


Figure 15: Bouncers' Current Average Weekly Purchases

## Surveys

<b>Average Visits Per Month</b>		
Times	Number of Families	Percentage
3	8	11%
4	12	16%
5	16	22%
6	18	25%
7	11	15%
8	8	11%
Total	73	100%

Table 4: Average Visits Per Month Survey

<b>Would You Use This Café?</b>		
Answer	Number of Families	Percentage
Yes	52	71%
No	14	19%
Maybe	7	10%
Total	73	100%

Table 5: 'Would You Use This Café?' Survey

<b>Café Products Preference</b>	
Item	Number of Votes
Pre-Packaged Snacks	27
Tea	9
Cold Brew	15
Drip Coffee	25
Keurig Coffee	12

Table 6: Additional Products Preference (Survey)



Appendix C  
Menu



Figure 16: Menu Concept

Budget

<u>Type:</u>	<u>Item:</u>	<u>Cost:</u>	<u>Quantity:</u>	<u>Total:</u>
Contract Work	Door:	\$1.600,00	NA	\$1.600,00
	Lighting (optional):	\$3.500,00	NA	\$3.500,00
	Interior Painting (w/o Contractor): 6 Gallons	\$89,68	NA	\$89,68
	Roof Sealing	\$400,00	NA	\$400,00
	<b>Total:</b>			\$5.589,68
	<b>Without Lighting:</b>			\$2.089,68

Table 7: Contract Work Budget

<b>Type:</b>	<b>Item:</b>	<b>Cost:</b>	<b>Quantity:</b>	<b>Total:</b>
Indoor Furniture Option A (Expensive Options):	<a href="#">Steelcase:Campfire Big Lounge. Includes lifetime warrenty</a>	\$1.649,00	3	\$4.947,00
	<a href="#">Ikea: Listerby, Coffee Table</a>	\$129,00	2	\$258,00
	<a href="#">Ikea: Mammut, Kids Chairs</a>	\$7,99	4	\$31,96
	<a href="#">Ikea: Mammut, Kids Table</a>	\$34,99	1	\$34,99
	<a href="#">Ikea: Vedbo, Armchair</a>	\$299,00	3	\$897,00
	<a href="#">Chalkboard</a>	\$59,00	1	\$59,00
	<a href="#">TCL: 49" TV</a>	\$249,00	2	\$498,00
	<a href="#">SoundSuade: 2 x 10 ceiling panels</a>	\$210,00	4	\$840,00
	<a href="#">Alphasorb: 2 x 2 wall panel</a>	\$85,00	2	\$170,00
	<a href="#">Honey Can Do: Trashcan</a>	\$46,89	1	\$46,89
	<b>Total:</b>			\$7.782,84

Table 8: Expensive Indoor Furniture Budget

<b>Type:</b>	<b>Item:</b>	<b>Cost:</b>	<b>Quantity:</b>	<b>Total:</b>
Indoor Furniture Option B (Cheapest Options):	<a href="#">Ikea: VÄDDÖ, 4 Chair Set</a>	\$169,00	1	\$169,00
	<a href="#">Ikea: VÄDDÖ, 2 Chair Set</a>	\$99,00	1	\$99,00
	<a href="#">Ikea: Mammut, Kids Chairs</a>	\$7,99	4	\$31,96
	<a href="#">Ikea: Mammut, Kids Table</a>	\$34,99	1	\$34,99
	<a href="#">TCL: 49" TV</a>	\$249,00	2	\$498,00
	<a href="#">In-house made sound dampaning panels</a>	\$25,00	8	\$200,00
	<a href="#">Honey Can Do: Trashcan</a>	\$46,89	1	\$46,89
	<b>Total:</b>			\$1.079,84

Table 9: Cheapest Indoor Furniture Budget

<u>Type:</u>	<u>Item:</u>	<u>Cost:</u>	<u>Quantity:</u>	<u>Total:</u>
Outdoor Furniture:	<a href="#">Adirondeck Chairs</a>	\$59,00	2	\$118,00
	<a href="#">Wall Hanging Planters (Optional)</a>	\$19,99	4	\$79,96
	<a href="#">White Ceiling Fans (Optional)</a>	\$119,00	2	\$238,00
	<a href="#">Picnic Table</a>	\$229,00	3	\$687,00
	<a href="#">TCL: 49" TV</a>	\$249,00	2	\$498,00
	<a href="#">Uline Outdoor Trashcan</a>	\$440,00	1	\$440,00
	<b>Total:</b>			\$2.060,96
	<b>Cheaper Total:</b>			\$1.743,00

Table 10: Outdoor Furniture Budget

<u>Type:</u>	<u>Item:</u>	<u>Cost:</u>	<u>Quantity:</u>	<u>Total:</u>
Cafe Equipment:	<a href="#">Ninja Hot and Cold Brew/Tea (CP307)</a>	\$179,99	1	\$179,99
	<a href="#">Bunn-O-Matic Pour-O-Matic</a>	\$255,75	1	\$255,75
	<a href="#">Keurig</a>	\$89,00	1	\$89,00
	<a href="#">Hamilton Beach 45 Cup Coffee Urn</a>	\$40,00	1	\$40,00

Table 11: Café Equipment Budget

	Low Cost	High Cost
Contracting and Construction:	\$2.089,68	\$5.589,68
Interior Furniture:	\$1.079,84	\$7.782,84
Outdoor Furniture:	\$1.743,00	\$2.060,96
Cafe Equipment:	\$129,00	\$435,74
<b>Total:</b>	<b>\$5.041,52</b>	<b>\$15.869,22</b>

Table 12: Budget Summary

