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| *CometBites* |
| **Feasibility Analysis** |
| **SE 6387 Advanced Software Engineering Project**  **R.Z. Wenkstern**    ***9/5/2016*** |

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# Revision History

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| --- | --- | --- | --- |
| **Version** | **Date** | **Description** | **Authors** |
| 0.1 | 9/5/2016 | Initial draft | Twinkle |
| 0.2 | 9/13/2016 | Completed initial draft | Twinkle |
| 1.0 | 9/15/2016 | Completed Version 1 | Twinkle |

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# **Executive Summary**

Concept

Our concept is a solution focused to overcome one of the major issues faced by the students of UTD every day and to upgrade the existing system to make their lives easier. The system needs to be revisited and rechecked considering the amount of growing lines at each food joint during the peak hours in our comet cafeteria. This is a game-changer constructed to overcome the long queues during the hungry times.

Project Goals

CometBites is catered with meticulous attention to details by the students in aide to the significantly growing demands at the Comet Café for the students, all of which comes with just a tap on your mobile phone on our application. Our application usage is simple and understandable for any common user to save an ample amount of time that gets wasted in waiting periods. CometBites, along with tackling the growing lines and waiting time also provides the knowledge of what is available now to eliminate the frustration that is caused after standing in a food joint for 30 minutes only to find out the favorite bread or sauce is unavailable. This helps customers to save a lot of time that would be otherwise wasted every day just by standing in a line, while they could be anywhere else doing anything they want.

Using the application, it is possible to reduce the hassle of getting stuck in the café traffic or missing classes, getting delayed for a class, etc. Ordering can be done online being anywhere and the time needed will be time to get to comet café to pick up the order placed. Ordering food for friends and family while standing in the line still takes a long time which involves preparing for multiple food items and packing extending the wait period even longer. Customers eventually lose patience and sometimes hunger. CometBites is a lifesaver to many who come across this issue every time heading hungry to the café and left with no other options.

Though this is a great option only if the students want to avoid the line, online ordering has never been a failure for a crowded and fast food joints. This can be made possible as the students at the Comet Café expect a faster delivery to grab and go to their classes. Finally, for those who still want to place the order in person, kiosks will be available with a predefined list of options for each food joint. That way, the system can keep track of the orders using tickets, generated in similar fashion to the online ordering app. Thus, customers that choose to place the order in person will not face huge lines and will also benefit from features equivalent to the ones provided by the app.

Risks Involved

The risks involved are time to deploy the application and the approval by the department to implement the necessary hardware and their supported devices, i.e. comet cards for payment, kiosk options, etc., involved for building the application in demand. This might lead to redefining the scope to fit the product with the approved permissions.

# 1. Introduction

Due to the busy schedules of the students as well as the staff around the campus in the University of Texas at Dallas (UTD), there is very less time available to grab a bite in the café. But the long waiting lines in the dining halls and the café make it more difficult to have a meal. In the end, the students end up either waiting for long periods or skip a meal. Sometimes the students resort to off-campus services as well.

The goal is to make a software that allows users to place orders online, which in turn provides the user functionalities such as wait time estimation, online payment, and so on. The computing environment is the UTD café, dining halls and other food joints on-campus.

For organization purposes, this document is structured as follows: the next section presents the background of the project and the third section addresses the scope of the project, comparing the alternatives that might include online ordering, reduction of queue wait time, allocation of kiosks, and online app used by UTD students. Subsequently, the following sections describe the aspects related to the alternative selected.

# 2. Background

Machines are already replacing humans for most work these days. The ATM machines have helped us do the bank transactions so easily and without actually going to a bank. The airports have a boarding pass printing kiosk which automatically prints the boarding pass and select a seat for passengers. These machines have reduced long waiting times in the queues, hence making it a hassle-free environment. This becomes a motivation for this project as the goal is to avoid the long waiting lines at the food joints and make it easier to order food just like other restaurants are doing these days.

This is not the first project to use airport kiosks and similar solutions as inspiration. Other individuals (e.g. companies, start-ups, students, etc.) employed this idea to many fields. For the specific online ordering field, one application is currently available. This application is called Tapingo[[1]](#footnote-2) and it provides university students the option to order food online. Although it is not particularly tailored to UTD, it allows any university to interface with the application itself. It would prove to be an alternative if there were no restrictions from the university perspective. Tapingo is not a feasible solution mainly because of financial restrictions. Firstly, there is a fee charged for the interfacing process (Tapingo and UTD system), with which UTD is not willing to comply. Also, there will be a fee included in every order ($.25 fee) and this poses to be a problem because UTD must follow the rules from each food franchise they host.

Finally, for some of the food joints available at UTD, customers can find existing apps specific to those food joints. They are fully-functional android applications that can provide the same or similar features. to the ones described in this project. These options include Subway[[2]](#footnote-3), Chick-fil-A[[3]](#footnote-4), and Panda Express[[4]](#footnote-5).

# 3. Alternatives

There can be many alternatives for this software project which depend on different environmental, legal, economical and operational characteristics. The café can have small kiosks for ordering food. The kiosks will have an interface which replicates the ordering menu of the food joints and help an individual order online by themselves instead of waiting in front of the food joints.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| CometBites | Candidate 1 |  | Candidate 2 | Candidate 3 |
| Description | Online app & kiosk |  | Online only | Kiosk only |
| Economic Feasibility | Equipment and installation costs  Considerable time to deploy |  | Reduced cost  Needs a short time to deploy | Equipment and installation costs  Considerable time to deploy |
| Technical Feasibility | Technology exists  Partial expertise |  | Technology exists  Team expertise | Technology exists  No expertise |
| Operational Feasibility | Fits daily operations  Easily adaptable  Drastic changes to the environment  Needs to interact with the existing system  Department approved |  | Limited changes to environment  Needs to interact with the existing system  Department approved | Fits daily operations  Easily adaptable  Drastic changes to the environment  Needs to interact with the existing system  Department approved |
| Schedule Feasibility | Realistic schedule  Some degree of flexibility  Up-to 1 month learn curve  Useful (when completed) |  | Realistic schedule  Some degree of flexibility  Two-week learn curve  Partially Useful (when completed) | Realistic schedule  Some degree of flexibility  Up-to 1 month learn curve  Partially Useful (when completed) |
| Legal Feasibility | TBD |  | TBD | TBD |

**Table 1:** Alternatives trade-off analysis.

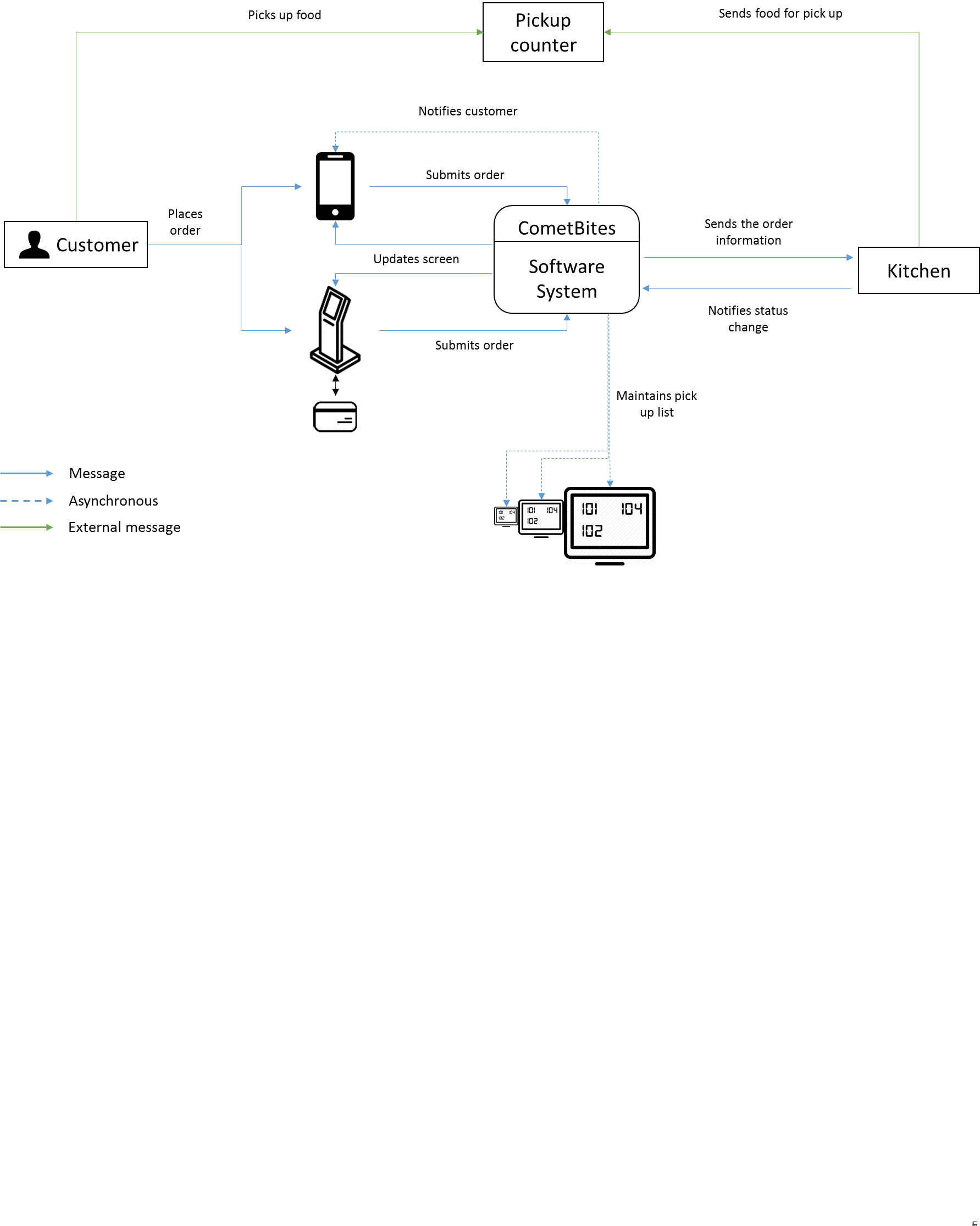
Table 1 shows the trade-off analysis for these alternatives. It is possible to note that there are multiple factors that have a positive influence regarding the project feasibility (in green), while some have a negative influence (in red), and finally some aspects are considered to be neither positive nor negative (in black).

The choice of the final approach varies due to different factors. The installing cost of the kiosks, ease to adapt and migrate to the software application, the changes caused in the environment, the approval by the concerned department, flexibility to employ new hires, level of technical expertise required for the development and many more. According to this, Candidate 1 was chosen. The following sections discuss the rationale for this decision.

# 4. System Description

The software application will focus on minimizing the crowd and long lines at the food joints and will help in a more systematic workflow. The application enables to order the food online and pick-up from a counter assigned right next to or inside each specific food joint.

The application will contain updated menu and the choice of food items just like they are in the restaurants on-campus. There can be options to pay cash/card on pick-up or accepting e-payments by debit/credit cards. Extra staff might be required at the pick-up spot and an admin to keep a track of the inventory and the daily updates on the menu and prices of the food items. The app can be used just by the UTD students or it can be used by anyone registered and identity can be validated using online payment.



# 5. Cost-Benefit Analysis

The benefits associated with this project are that more people will order food online as they will have an estimated waiting time so they won’t have to skip meals or wait endlessly. It will be beneficial for the UTD food department as the students will order more on-campus rather than shifting to off-campus restaurants.

Candidate 1 was chosen as it contemplates both the online functionality and the ordering in person. In order to address the complete scenario, this is the most feasible option. However, candidates 2 and 3 are more effective (cost-wise) as they require less cost for installation and/or development.

# 6. Evaluation of Technical Risk

The team is familiar with online apps and we have the expertise to carry on with the project, making all candidates feasible. There is one aspect that is important to note, which is the fact that, for candidates 1 and 3, although the technologies already exist, the team doesn’t have the expertise to operate and/or interact with the kiosk machine, which slightly increases the learning curve. This is not expected to have a high impact in the predicted project completion.

# 7. Operational Impact

The operational feasibility includes the adaptability of the app in the existing environment. It includes the changes that the app needs to make in the existing environment and what are the impact of those changes. The app has the permission from the UTD food and dining services department. There should be proper synchronization with the restaurants and the staff. The ease of access and the flexibility of the app to accommodate daily updates comes under operational feasibility. The easier for the app to fit in the daily operations, the better will be the results. Considering these aspects, candidate 2 would be the best option, since no kiosks would be installed and it would be less invasive. In other words, there are no drastic changes to the environment.

# 8. Legal Ramifications

The legal rules and regulations to be followed will be discussed with the respective department and will be updated in the next version.

# 9. Schedule Analysis

There is a strict time limitation for this project which is a major criterion in selection of the candidate. It is possible to state that all candidates have realistic schedule with some degree of flexibility. The major difference is that candidate 1 is the only alternative which will be useful as soon as the project is finished.

Due to these factors, candidate 1 is the best option.

# 10. Other Project-Specific Topics

TBD

# Appendix A: Glossary

|  |  |
| --- | --- |
| **Term** | **Definition** |
| **UTD** | University of Texas at Dallas |
| **TBD** | To be defined |
| **POSF** | Point of Sale functionality |

1. http://www.tapingo.com/ [↑](#footnote-ref-2)
2. https://play.google.com/store/apps/details?id=com.subway.mobile.subwayapp03&hl=en [↑](#footnote-ref-3)
3. https://play.google.com/store/apps/details?id=com.chickfila.cfaflagship&hl=en [↑](#footnote-ref-4)
4. https://play.google.com/store/apps/details?id=com.pandaexpress.app&hl=en [↑](#footnote-ref-5)