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| **ASIA PACIFIC COLLEGE**  School of Computer Science and Information  Technology |
| A RESEARCH ON MOBILE APPLICATION DESIGN |
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**INTRODUCTION**

In light of recent events, wherein smart phones are widely being used all over the world, it is purely evident that *Mobile Applications* (or Mobile Apps) have begun to proliferate alongside the Mobile Market. These apps have slowly invaded the Information Technology world, and in line with this, the proponents of this study will be conducting a research about the Design of Mobile Applications. In this study, the team will also evaluate the *Social Constructionism* of the said Mobile apps. Its relevance to significant issues at status quo, the influences that drive an individual to design or develop an application, and the underlying design forces that may trigger the Mobile apps inception and implementation. In this study, the proponents will be identifying the key-players and their involvement in the development and the designing of Mobile apps.

To further the scale of this research, the team identified a specific premise. This premise asserts that in the design and development of mobile applications, several aspects of discourse are always to be considered. To fully identify the influences and to define the involvement of the actors in the construction of Mobile Applications, the team must further break down the elements of Mobile App Design to research relevant information and to gather evidences. These factors that the team arrived with are the following: **(1)** *Underlying Design Triggers* which includes relevant information as to how the design of Mobile apps are motivated in a social perspective*,* **(2)** *Design Process Actors*, which provides a detailed description of the actors that the study identifies as a part of the design process, **(3)** *Actors and their Impact to the Design Process,* which includes the involvement of the actors in the mobile apps industry, relevant issues to mobile app design (i.e. culture, power dynamics, influences) and the design process implications that the proponents found in the study they have conducted, and **(4)** *Local Mobile Application Development,* which discusses the result of the research that the proponents have gathered in accordance to Mobile App development in the Philippines. These mentioned sections are discussed in the Research Findings Section of this study.

Through this study, the team aims to answer the following questions:

1. Is design, market driven or individual driven?
2. Who are the actors in the design of Mobile apps?
3. How do these actors shape the design process?
4. What is the nature of their influences?
5. What are the implications in the design process?

**BACKGROUND OF THE STUDY**

The team’s primary data gathering method is research. For the verification of various items that were obtained through research, the team used another data gathering method which is survey distribution. The group gathered the data for their findings through online and paper surveys. The results obtained were then analyzed and used to attest the research done by the team that was gathered from the web. The survey is divided into two, the *business set* that has sub-categories (those who use mobile apps for work and those who do not). This category includes those people who are involved in marketing, advertising, accounting or any other business-related industry. The next category is the *designers set,* which include people who are affiliated to, or are in the field of multimedia-arts, including both professionals and students.

The team’s online survey was made available on March 24 and was closed on April 8. The team allotted a day for the paper survey which was distributed to an office (Union Bank of the Philippines) wherein the team used the available connections and possible avenues for data gathering that they have to gather survey respondents in the allotted period of time. The online survey for designers reached **40** respondents, the business survey that does not use mobile apps has **8** respondents, the business survey that do use mobile apps has **46** respondents. For the paper survey, the business survey for those who use mobile apps reached a total of **23** respondents and those who don’t has **3**, as for the designer survey there were **13** respondents from the office who are designers. All in all, there were a **total of 133 respondents**. It is important to note that most of the respondents in the online questionnaire mostly include those who are in their younger years, within the range of 17 – 21 (although there are still some respondents who are aged older). However, the distributed paper questionnaires were geared towards those who are of older age in comparison to the previous set of respondents (around 22 - above). The reason behind this disparity in the data gathering method lies on the restrictions set by the company in terms of Internet Connection and accessible sites within the office.

Each team member is tasked to do their own research that answers the five questions and then a background of the author is researched for credibility. When the author proves to be credible for his past works, the article is then analyzed by the member who obtained the said research and matches it with the survey questions. This process is done with the other members of the group so that the team could share their findings with other members for any comments, and suggestions. Important notes that were in the articles were focused on by the group; examples include factors that influenced the designing and developing of a mobile application.

The proponents have included a Mobile App Analysis for this study. Therefore after evidences have been gathered for each aspect of Mobile App Design, the gathered evidences will be used to assess certain mobile applications developed by Filipinos. Part of the selection of these mobile apps, aside from their Filipino developers/designers-descent, is its social acceptance in the industry.

After the analysis, evaluation of the results is due. A separate section for the interpretation and analysis of the results is included in the study. This section should include a summary of the claims that may be derived from the said research, and will be represented by the data derived in the research findings section. This will be a culmination of all the results’ outcomes and their possible implications to the study.

**SCOPE AND LIMITATIONS**

An objective of the study is to delve into the design of mobile applications with regard to the 5 questions to be answered for this research. From these questions, the social construction of Mobile app design will be observed based on the respondents’ answers. Key players or actors in the mobile app industry and the influences with regard to development of mobile applications will also be included in the study. However, the study limits the discussion of actors with regard to the target *respondent* *sets* that the team assigned for the survey distribution and their gathered data from the research.

For the Mobile Application Analysis, the team has limited the study to the applications researched and discussed in the findings section – to have a manageable pool of comparison within the study.

The team will not include any assumptions and will only use survey results and research findings to complete the study.

**RESEARCH FINDINGS**

* **Underlying Design Triggers**

To further explain various design triggers / determinants that are involved in the *Mobile App Design Process*, the proponents came up with three technical aspects that are linked to the design of Mobile Apps. These aspects that the team arrived with are the following: (1) ***Design***, which pertains to the mobile app’s interface design (i.e. navigation, color schemes, fonts, etc.), (2) ***Function***, which refers to the structure of the Mobile App (i.e. app language, platforms, features, etc.) and (3) ***Trend****,* which includes the involvement of the actors in the mobile apps industry, relevant issues to mobile app design (i.e. culture, power dynamics, influences)

The following sections discuss our findings for each category in detail.

* Design
* *In designing mobile apps, the* ***preferences*** */* ***professional******opinion*** *of various designers may differ, however the customer (target market, users)’s requirements should be taken into consideration.* *(Wondrack, 2015)*

The article discusses the problem that could be present whenever various designers are asked about what design is, and they arrive with various inconclusive and different answers. The Rochester Institute of Technology Professor, James Wondrack, believes that successful design implementation lies on taxonomy. He was able to impart this in his study (in verbatim): *“Stylistic design helps to create a pleasing appearance to customers. By doing so, they are more likely to enjoy a product because of its aesthetic appeal.”* The author believes, that the first step in systematic design implementation is to have stylistic design, which conforms to what clients’ or customers’ think is pleasing.

* **Researching** for the application’s **main** **purpose** in the field, is also vital in designing the UI and UX of the product. (Tyson, 2015) The trend nowadays, with applications is that most users prefer having products / apps that provide them with what they want. Re-stating the words in verbatim, of Mr. Josh Tyson, Managing Editor of UX Magazine: *“These days, for a product to stand a chance in an overcrowded marketplace, it needs to serve a distinct need and serve that need in a way that rewards consumers.”* It is, in his belief, that the application Lumosity, was able to receive various awards, recognition and acclaim both from award-giving bodies in the IT industry and from its users, because of the research and the study that they have done to further the application’s design and functions. At present time, most of Lumosity’s competitors include other cognitive – game applications that personalize their *‘feel’* for each user, however – the years of study and research that the designers have given to the Lumosity app, cannot easily be trumped. “The initial two years of prototyping were essential because not only were we creating the foundation for a new science-based product, but we were also defining a new industry,” says Melissa Malski, a Public Relations Specialist at Lumosity. It is also in the author’s belief that like the brain app, Lumosity, ‘*successful products are not overnight wins, but the culmination of years of work, research, and ideation.’* With this study, the proponents were able to come up with the conclusion that designers consider studies and research about the objectives of an application, in designing the mobile app’s UI and UX.
* Function
* *There are certain* ***features*** *that the developer must consider in developing* ***functionalities*** *of a mobile application. (Gerber, 2012)* In an article entitled “*13 Must Have Features for your BusinessMobile App”* written by Scott Gerber, a serial entrepreneur and the founder of Young Entrepreneurial Council (YEC), he identified some features that are quite ideal for a mobile application particularly for a business. He gathered his results by asking a panel of successful young entrepreneurs the question “*Designing a mobile application for your small busines*s*? Name one must-have feature to make for a positive user experience.”* The team considered this article as a reference because we would like to make a comparison on how different kinds of people prefer their mobile applications to look like, such as business-oriented respondents for this one. Gerber consolidated the answers he obtained and came up with a list that contains the top answers.

One answer included in Gerber’s list is **to keep the application simple**. This answer came from Jesse Davis of Appinions Inc. He said that it is more important to figure out first the basic things the users want and build those features and nothing else. For him as a user, he would rather use an app that lets him do what he wants in 15 seconds than a convoluted UX that lets him do things he have no interest in actually doing.

Another answer in the list is from George Mavromaras, of Mavro Inc.which is **to include analytics**. Not necessarily in a business application but one must be able to track and identify the user experience and actions and the analysis of the data gathered can be an encouraging tool for developer’s to produce better updates.

Another answer from Gerber’s list is to **prioritize speed** which came from Ben Lang, the cofounder of Map Me App. He said that it is very important that the application being developed is not slow. For him, it is a crucial part that the application you are developing does not make people wait around while the app loads.

* Trend
* *Mobile applications are now a part of companies‘* ***digital******strategies*** *(Anderson, 2015)* Everything happens online and the generation today does not even read magazines anymore, that is why even luxury brands is now moving onto the social media and digital advertising trying to balance their brand’s prestige and exclusiveness risking their image.

*“The amount of times people actually go to a car dealership has diminished. By the time they get to the door all they really want to do is test drive. All the research, everything, happens online.”*

* Laura Schwab, marketing director at Jaguar Land Rover

In the past luxury brands are reluctant in engaging with the social media as a part of their strategy and as of late these brands are starting to change and realizing the impact and the threat of the social media if they are not able to adapt with the constant change in the industry.

What drove these brands to design an application exclusive for the type of business that they have is the environment, if they cannot catch up with the trend their exclusivity can cause their downfall.

* *Incredible, world-changing software* ***innovations often come from students****. (Castillo, 2015)* Major players like Microsoft, Google and Apple influences the boundless creativity of college students in coming up with world changing mobile applications. These major players are part of people’s daily lives just from using their product and services and knowing students who is practically in the center of these giants are the ones who mostly engages with these said players.

Students are people uninfluenced by the restricting standards of the corporate world still, which is the main reason why they are the ones who can come up with world changing innovations fuelled up by the environment that they live in and the various competitions hosted by these giants like Imagine Cup per se that pushes them to dwell into mobile application development.

Computer Science graduate, Aisha Davis, who once took part in Imagine Cup during her college years, said that “I wasn’t a 4.0 student, I just had a dream, I had a passion and I had a mentor,” Davis says. “People say dreams don’t come true. Microsoft was my dream company and I was your average Joe and I’m here now and I’m living my dream every day.” The previous quote is an excerpt from an article *“Voices: Do companies take college student app developers seriously?”* in *college.usatoday.com*

Aisha’s dream to work for Microsoft is one of the reasons why she was into mobile application development today. Her statement can also be a reason for some of the college students of today and their involvement in mobile application development.

The proponents used the *underlying design triggers* evaluated in the previous section(Design, Function and Trend) to analyze whether or not the mobile app design is **market – driven** or **individual – driven.** Market – driven design means *having the guidance systems and discipline to make sound strategic choices* and being able to *implement them consistently and thoroughly.* (Day, 1998) On the other hand, individual – driven design *(for new product development) pertains to design that has an increased focus on user creativity and innovation when it comes to generating new ideas to fulfill anticipated needs.* (Jespersen, 2008) Some of the survey questions that helped identify an answer to the question *“Is design, market – driven or individual – driven?” are discussed below:*

* The question: **“When you visit your Local Application Store, do you look for apps that you can use for studies / for work, aside from leisure applications?”** yields a positive response of **82.28%,** and a negative response of **17.72%.** This can be interpreted as “*82% of the respondents seek productivity / utility apps in the market.”* If we recall the study of Tyson (2015), it says that Mobile apps in the market all seek to answer a distinct need of its customers. To do this, they must research first on what the app’s objective is, and expand that to answer the customer’s needs, it can be confirmed that from 82% of the respondents who seek productivity / utility apps in the market, can be a source of market research for designers and developers, which in turn may affect how they design / develop a Mobile app. The succeeding pie chart is a representation of the respondent’s answers to the mentioned question.
* Another item from the survey instructs the respondent to: **“Rank the following categories of mobile apps, by estimating the frequency of usage you devote to each app in your mobile device.”** Our results indicate that the most widely-used mobile app from the categories are Games and Social Networking Apps. This may be interpreted as *“there is a present ‘****niche’****, or a special space, in the market for Mobile apps that engage the users’ social and personal needs.”*

It can be seen from the previous illustration that the category of the apps that the *Business-affiliated respondents, who did not use apps for work,* spend most of their time on are Games and Social networking.

* Now that we have established, that there is a certain niche for identified categories of Mobile apps in the market, let us assess the responses from the item: ***“Tallying the number of applications in your mobile gadgets, identify the range of your installed applications for each category.”***It is important to note that this question was asked to both the *Business set (who used mobile apps for work),* and to the *Designer set.*The results for the business set are illustrated in the succeeding diagram:

The proponents noticed that the results were leaning greatly on the “few” apps installed section, and this denotes *moderate* usage / downloads of applications available in each category.

As for the Designers set, we can see that there are sections in each category that yield some similarities with the Business set.

The previous graph of the designer respondents illustrates the similar *inverse – parabolic* curve for each category (meaning, the responses ascend and meet at the middle, then descend once more). This is important to note because not only does it further prove that the Mobile app market is deeply rooted in the respondents’ devices, but it also proves that the market has now established a social relationship with the Mobile app industry.

To conclude, the proponents believe that from the previous evidence, the answer to the first research question is leaning more on the *design being market – driven.*

* **Design Process Actors**

For the Design Process Actors involved in the *Mobile App Design Process,* the team focused on the following possible actors that they used as the target respondents for the Survey Distribution.

This research is concerned with the various origins of influence for Mobile app design wherein the team categorized these sources as ***actors, groups*** *and* ***factors.*** The **actors** include individuals, or personas that influence the Mobile Design process. A collective term for various clusters of influential actors that affect the Mobile app design process as a whole is identified as **groups.** The **basic elements** refer to non – individual and non – group influences that have an effect on the Mobile app design process. These basic technological elements are most likely in the form of intangible and abstract constructs described to represent the entities that help form the design of Mobile apps. Using the sets for the surveys that the team distributed, the proponents derived the mentioned origins under the following sections:

The following tables discuss the common actors that are supposedly evident in both the *Business set* andthe *Designer set,* and the individual *set* themselves*.*

**Common Actors**

|  |  |  |
| --- | --- | --- |
| Actors | Category | Description |
| Friends and Peers | Actor | Friends and peers are one of the involved parties upon an individual’s engagement in Social Networking Mobile applications |
| Relatives | Actor | An individual’s relatives are also involved in one’s engagement in Personal Communication apps |
| Co-workers or Officemates | Actor | Some mobile apps required by the company that are used by office employees may include work – related Communication apps |
| Self | Actor | The segment of hobbies / past time as represented in the survey may represent one’s inclination to participate willingly in the Mobile app design process |
| Technology | Basic Element | Various forms of technology, may it be in the form of Mobile Operating Systems or application types |
| Principles | Basic Element | The fundamentals of design process. |

**Business Set**

|  |  |  |
| --- | --- | --- |
| Actors | Category | Description |
| Business-affiliated professionals / students | Actor | The people that are involved in Marketing, Advertising, Accounting, and other Business – related personas that were considered as this set’s target respondents |
| Clients and Customers | Actor | External individuals related to communication apps. |
| Company | Group | The entity that influences or mandates the use of work related mobile application |

**Designers Set**

|  |  |  |
| --- | --- | --- |
| Actors | Category | Description |
| Designers | Actor | The people that are involved in application designing or any multimedia arts related industry– related personas that were considered as this set’s target respondents |
| Professors | Actor | People that push and influence the designers with course/school requirements in developing mobile applications. |
| Intended Users | Actor | A collective term that refers to the people for whom designers create mobile application designs for. |
| Company Employer and Clients | Actor | The people that set requirements and standards that designer follow for the design process. |
| Market | Group | The target by most mobile application projects for profitability |
| UI / UX Community | Group | A faction where designers convene to converse about the latest trend and to lend a hand to co-designers |
| Schools / Institutes | Group | The training ground that buds and influence the designers to be involved in mobile application development. |

According to the designer set survey gathered by the team, the most influential factor in designing a mobile application is the designer’s hobby/interest, job opportunities as slightly influential and profit as not that influential as what is illustrated in the graph below:

As what is shown, the designer’s self is one of the major key actors in the design process with majority of the respondents answering hobby or interest as the most influential. With these, self is deemed more important than what the market demands that explains the design of mobile application is inhabited by the actor’s self interest and what the market needs only comes in second.

* **The Actors and Their Impact to the Design Process**
* **Design Process Formation**

In designing a mobile application, there are some things to consider like what platform are your designing it for, is it for a mobile website or a mobile app, what is it for or what specific app are you designing it for, UI conventions and finally the practicality of the mobile app. (Warren, 2010)

The designer set survey shown in the diagrams below shows how much and what are the things that designers consider in coming up with a mobile app design:

The figure shows that the designer respondents is into mobile application designing and 31% says that web designing is still the respondents’ preferred platform and 7% are still contemplating with web and mobile.

The rise of interest of the respondents with regards to the mobile application design have something to do with the actors that was discussed in the previous section of the research study, *the Design Process Actors*. In the previous study, *technology* was discussed as one of the basic element actors that contribute to the mobile application design process. According to the designer set survey which is illustrated in the chart below, 92% of the respondents consult the internet for the latest trends in design involving the current tools or the technology used by most designers in the design process.

Technology or the tools used in designing mobile applications in this case the platforms and the operating system currently available in the market as what is shown in the next diagram in connection with the designer’s preferred or own choice of usage, greatly influences the way designers create or come up with mobile compatible designs.

Here is another example of technology and the designers’ self or own choice is illustrated as one of the key factors in the formation of application in the listed categories in the diagram below. The games category tops off all the others with 71.5% leaving the second placers which are the travel apps/maps and entertainment apps with 13.81% lead. With the respondents ranging from ages 25 and below may well explain the disparity between the other categories as coming off at the top and the current demand with the technology that we have. The mobile game app industry is exceeding the market estimates and is still growing. (Pearson, 2014)

Waiting for the Q8 digram

In creating a design for an application, user experience and user interface designers should be separated and not combined. Designers need not only design for their own self interest but also for the users of their design. User experience designers studies the users and keeps their experience throughout the phases of the project while user interface designers are people that makes users understand ad figure out how their design works just by looking at it. (Morrison, 2014) With that said, the way designers studies the users of their mobile application is one of the factors that designers consider in the design process. The diagram below illustrates the respondents main concern is their user experience with 73% of them believing that UX is more important than UI.

* **Nature of their Influences**
  + More and more **companies** & **government agencies** are hosting competitions in *Mobile App development & design.* 
    - This trend of conducting contests from *idea/concept building*, to long-term or short-term **development** has slowly invaded the IT and marketing strategies of most corporate entities here in the Philippines
* **Design Process Implications**

With the majority of business set respondents that answered mobile applications is normally and rapidly integrating in their industry, leisure apps and social networking apps is still the most installed application for the respondents, as what is shown in the graphs below. Though the previous first chart says completely different, it only implies that though mobile application is integrating people still does not use the apps that are available for work usage. The said present apps for work usage are available but it is not mandated by the company/institution that the respondents are associated with.

* **Local Mobile Application Development**

After obtaining the evidences for the research, the proponents have arrived with an analysis for Mobile apps created by Filipinos in the industry. These mobile apps include:

* Streetfood Tycoon
* TARA: Theft Apprehension and Asset Recovery
* Pugo
* Bulalord Xtreme

The mentioned applications were assessed with the research criteria (design, function and trend) for the benefit of having a thorough analysis of some of the Filipino mobile apps of the present.

|  |  |  |  |
| --- | --- | --- | --- |
| Criteria | Streetfood Tycoon | TARA | Pugo and Bulalord |
| DESIGN | * Filipino culture is present in the whole game * The UI is responsive, and may be considered as average, based on ratings | * Design is simple and is geared towards functionality | * Both incorporates designs similar to the app Flappy-bird * There are some minor revisions in each app’s U |
| FUNCTION | * In some ways, their games may be considered as *‘a rip off’* of food serving games from Y8.com | * T A R A : Theft Apprehension and Asset Recovery * If you activate the kill switch, the phone will scream *“Magnanakaw!”* non-stop. * Creating an account is as simple as registering an email account | * Pugo follows the same mechanic as Flappy Bird that lets you control a pink quail by tapping the screen to avoid obstacles. Bulalord Xtreme follows the same scheme as well |
| TREND | * Kuyimobile, the app’s developer and uploader – are embracing the industry of mobile games, by adding a theme of Filipino Pride in their app * The basis of the app’s functions are derived from Y8.com | * Unfortunately, this app is only available for MyPhone users * The culture of seeking solutions to everyday *problems* are being incorporated in this app | * The “Bulalord Extreme” and “pugo” apps are clones from its original game “Flappy Bird” and based from news that became a trend in the Filipino Social Media/Community. |

**Table 1.0 Mobile Application Analysis**

**INTERPRETATION OF RESULTS**

In line with the findings that have been obtained by the proponents, together with the Mobile App Analysis results, the following interpretations and claims have been derived:

The succeeding illustration is a visual representation of the obtained results for the Mobile App Analysis, the proponents were able to arrive with some similarities such as (1) the injection of *Filipino Characteristics,* to the concept of existing mobile apps, (2) the value of the developers / designers imparting their *beliefs, opinions and desires,* to the app that they design / develop, (3) the idea of creating their apps for their users, and (4) the apps possessing a sense of serving their *purpose*.

**Similarities:**

* + These apps’ functions and designs are influenced by existing mobile apps on the app store, but these possess **Filipino** characteristics **(eg. traits, media, solutions, etc.)**
  + Somehow these apps are an extension of the developers’ / designer’s **values, beliefs, opinions, and desires**
  + Key-players shaped the design of these apps based on **their preferences**, but for their **users**

**Diagram 1.1 Venn Diagram for Mobile App Analysis**

From the result of the accomplished analysis, the proponents were able to derive the following claims that may further support the constructive of the methods and the influences governing the designers’ and the developers’ way of creating mobile apps.

The claims have been separated in accordance to the category from which the ideas have been derived (Design, Function and Trend):

**GLOSSARY**

**CAMSS** – Cloud, Analytics, Mobility, Social Business and Security *(Retrieved from http://www.ibm.com/ibm/clientcenter/montpellier/camss.shtml)*

**Digital Strategies –** blueprint for managing customer-facing information technology (IT) initiatives *(Retrieved from http://searchcio.techtarget.com/definition/digital-strategy)*

**International Data Corporation –** the premier global provider of market intelligence, advisory services, and events for the information technology, telecommunications and consumer technology markets. *(Retrieved from http://www.idc.com/about/about.jsp)*

**Imagine Cup –** Microsoft’s premier student technology competition *(Retrieved from https://www.imaginecup.com/)*

**Mobile Application** – a software application developed specifically for use on small, wireless computing devices, such as smartphones and tablets, rather than desktop or laptop computers. *(Retrieved from http://whatis.techtarget.com/definition/mobile-app)*

**Mobile Application Development** - set of processes and procedures involved in writing software for small, wireless computing devices such as smartphones or tablets. *(Retrieved from http://searchsoa.techtarget.com/definition/Mobile-application-development)*

**Social Constructionism -** in sociology, a school of thought pertaining to the ways social phenomena are created, institutionalized, and made into tradition by humans. *(Retrieved from http://dictionary.reference.com/browse/social+constructionism)*

**UI/User Interface –** everything designed into an information device with which a human being may interact. *(Retrieved from http://searchsoa.techtarget.com/definition/user-interface)*

**UX/ User Experience -** The overall experience of a person using a product such as a website or computer application, especially in terms of how easy or pleasing it is to use. *(Retrieved from http://www.oxforddictionaries.com/us/definition/american\_english/user-experience)*

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**APPENDIX**

**Mobile Application Sample Screenshots:**

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**Image 1.1 Streetfood Tycoon at the Android App Store**

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**Image 1.2 Streetfood Tycoon Interface**

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**Image 1.3 TARA Mobile App Poster**

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| --- | --- |
| *Screen Clipping*  **Image 1.4 Pugo Home Screen** | *Screen Clipping*  **Image 1.6 Bulalord Xtreme Screenshot** |
| *Screen Clipping*  **Image 1.5 Pugo In-game Screenshot** |