

Bots: An alternative for Mobile Apps

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Abstract— Mobile devices become an essential part of life in current era and their user requires various application for accessing internet to internet, eCommerce, eBanking, entertainment, writing documents and reading books. Now days thousands of apps are available for different mobile platform and their count is increasing every day moving mobile markets towards saturation. AI techniques are used by developers for making their application more interactive and allowing users to personalize it. The paper provides an introspection of such techniques and their feasibility.

Keywords— Artificial agents, AI agents, platform, mobile apps, interface.

I. INTRODUCTION

With time mobile devices becomes necessity from an accessory which provides their owner communication on the go. In current era they are not used only for communication but for entertainment, reading books, accessing banking services, writing documents, etc. These devices help in expanding the coverage of ecommerce to more masses with little or no technical expertise. The functionality of any mobile device is dependent on the software application present in it adequately supported by its hardware. Mobile applications commonly called apps provides users of mobile devices a rich user interface with seamless connectivity. Developers continuously upgrade these apps to implement new functionalities, improve performance and change GUI appearance.

Most of the developers design their apps for cross platforms to target users of any mobile device. Main objective of developer to design apps that consumes less resources, provide maximum throughput and simple & attractive user interface. To design app with basic features along with ability to personalize itself according to user behaviour and habits, developers are using new technologies like AI techniques. Besides this mobile apps market is moving towards saturation and developers are

thinking after it what in next? This paper discusses about different mobile platforms and their market share, tools & techniques used for apps development, AI agents. In the last segment paper focuses on bots application, their usage and effect on mobile apps.

II. MOBILE PLATFORM

A software platform for mobile devices is one on which other apps can run and it provides basic services such as controlling, processing, storage, management etc. is called operating system for mobile or mobile platform. Commonly available mobile platforms are Android, iOS, Windows mobile, BADA, Blackberry OS etc. According to a recent survey 99.6% of new smart phones are based on Google Android and Apple iOS. Due to which developers mostly design new apps by keeping in mind these two mobile platforms.

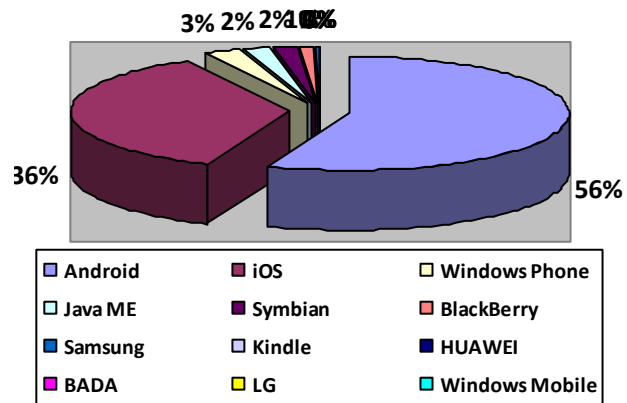


Fig. 1. Mobile operating system market share [1]

A. Development Platform

To build, test and deploy mobile apps rapidly for any mobile device, application developer uses mobile application development platform (MADP). Most of the development platforms are designed to support the development of mobile app for multiple platforms. These development platforms provide a variety of graphical components or widgets,

management tools, mobile backend services, tools for third party services, emulator etc. Using these development platforms developers can develop apps such as native, web based, or hybrid. Commonly used mobile application development platforms are Dojo mobile, Verivo software, Appcelerator Titanium, Eclipse for mobile app development, Senchor, Adobe phone gap, Android studio etc.

III. TOOLS & TECHNIQUES USED

In last decade desktop computing is overtaken by mobile computing which in turn ruled by smart phones currently. Smart phones have different hardware architecture and software platforms which may have some inbuilt apps but for other usage third party apps are required. Developers of these apps must consider this variety and develop their apps for cross platform. This in turn increases the demand for tools that can support cross platform development. Before starting the development of app, developer must identify the genre of app as it helps in selecting the right development tool. Then developer should identify the priority of organization which may be security of data, high performance or ease of use. Also developer should keep in mind the possible users and their requirements while developing the app. Successful implementation of mobile is largely dependent on the type of mobile application development platform used. Development platform provides tools used by developer to develop a quality, reliable, secure and efficient app in minimum time. Tools provided by the platform includes front end and back end development tools which developer uses for designing interface and implementing business logic for app. In app development, user interface and user experience (UI-UX) are developed with the help of front end tools which includes UI design tools, GUI components, SDKs to access device features and cross platform support. Back end tools provides a set of centrally managed and controlled services with abilities to integrate apps with back end systems, user authentication – authorization, data services etc. With increasing usage of ecommerce and e-banking services

through mobiles it becomes important to include security features in existing or new apps. For implementing security features developer uses passwords and cryptographic techniques. While developing a complex app developer can use layered approach for placing different components and functionalities in the app without compromising with performance.

Emulator is another important tool used by app developers to test their mobile app inexpensively. An emulator is a virtual representation of physical device with all hardware and software features of a typical device. For almost every mobile platform, emulators are available for testing the app. Some of the emulators are – iPhone, Android Emulator, Windows UI Automation etc. Some of the cross platform emulators are – egg plant, Ranores, Testdroid etc.

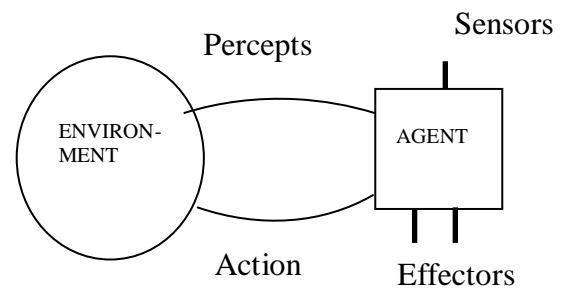


Fig. 2. Working of Agent

IV. AI AGENTS

The capability of perceiving inputs from its environment with the help of sensors and responding back to the environment through effectors makes an agent. Biological agents generally are sense organs such as skin, nose, ears, eyes and tongue present in animals. When a software program is designed to observe changes in its environment through sensors and generate responses using actuators is called artificial agent or software agent. AI agents are autonomous entity which can move across the network to fulfill its goal with justified methodology.

Artificial Intelligence is a modern science which is emerged in 1956, its founder was John Mc

Carthy. [2] The roots of artificial intelligence can be found from the beginning of human civilizations. The term AI agent is emerged in the beginning of 1990 by some researchers. An agent must be able to adopt according to changing conditions with objective to achieve goals of complex problems in proactivity & social ability. [3] Other desirable properties that an agent may have are flexibility, mobility, reasoning, learning, communication etc. AI agents generally makes less mistakes while achieving its goals, reduce response time as it does not make computations for things which are performed in past and always find better solutions for a wide range of problems. AI agents are extensively used by software developers in different domains to add new functionality to software. Multiple agents present in a hierarchical order communicate with each other to share data and resources for solving the complex problems. AI agents can be used as automated assistants both for offline and online software. Their prime function is to identify the needs of customers in order to provide individualized customer service. An agent

With continuous increase in number of mobile apps for almost every domain the market for mobile apps is saturating. So developers started searching for solution of it where they can get more flexibility, less usage of resources, cost effective in maintenance and easily upgradable. Software bots fulfill almost all of these requirements. Software bots are easier to install, does not require any download for upgrade, uses little storage space, does not make mobile screen bulky, easier to maintain and more interactive. Due to features and their ability to adapt according to user, some developers believe that bots can replace mobile apps in near future. Bots are more efficient, responsive, cost effective and interactive in comparison to mobile apps. With growth of technologies like voice recognition, Natural Language Processing (NLP) and Cognitive computing, provides platform for developer to develop application with which users can talk to system instead of typing text to get response or task done. Example of this is the overwhelming response received by automated assistants like Apple's Siri,

optimal manner. An AI agent may be a simple reflex agent, model based reflex agent, utility based agents, goal based agent, or learning based agent. AI researcher's Russell & Norvig identifies four properties that an agent must have from the AI perspective. These include autonomy, reactivity, may be visible or invisible utility to perform its work with expertise. [4]

With the capability to learn from its environment, experience and capability to adapt itself make it suitable for getting used in mobile application development environment. [5] A software agent used over the internet with ability to perform automated task such as running script is called bot or web robot or internet bot. In 1988, with internet relay chat (IRC) bots are first emerged. Bots are used to provide automated services to IRC users and also prevent the server from closing the channel due to inactivity. Bots are designed to perform simple and structured tasks repetitively over internet.

V. BOTS FOR MOBILE APPLICATION

Google Assistant. Bots are considered to be useful by corporate giants as they are easier to install, distribute, portable, inexpensive to build, maintain and deploy. Bots are faster than mobile apps as they

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computing, provides platform for developer to develop application with which users can talk to system instead of typing text to get response or task done. Example of this is the overwhelming response received by automated assistants like Apple's Siri, Google Assistant. Bots are considered to be useful by corporate giants as they are easier to install, distribute, portable, inexpensive to build, maintain and deploy. Bots are faster than mobile apps as they load instantly, easier to use, they do not require any visual interface to interact. With bots users does not have to scroll or tap in mobile apps to search a thing but simply order them in natural language. In present scenario, bots are used in following areas – e-commerce, food bots for online restaurants, content bots for news and weather, watcher bots, banking & trading bots, workflow bots, chat bots, IoT bots, personal bots etc.

VI. CONCLUSION

This paper provides insight into the mobile apps development, its usage and importance. Usage of AI techniques in mobile apps development and what impact they create is also discussed here. In last segment of the paper, bots are discussed in brief, their usage and applicability in the field of mobile app development. Bots are compared with mobile apps in terms of installation, usage, efficiency, performance etc. Finally paper focuses on whether bots can replace mobile apps in future.

REFERENCES

- [1] [https://www.netmarketshare.com/operating-system_market-share.aspx ?qprid=8 & qpcustomd=1](https://www.netmarketshare.com/operating-system_market-share.aspx?qprid=8&qpcustomd=1)
- [2] Marvin Minsky; John McCarthy; "International Conference", Dartmouth College, 1956.
- [3] Russell, Stuart J.; Norvig, Peter (2009). *Artificial Intelligence: A Modern Approach* (3rd ed.). Upper Saddle River, New Jersey: Prentice Hall. ISBN 0-13-604259-7
- [4] Krzy Sztol Pietroszek, "Providing Language Instructor with Artificial Intelligence Assistant," *International Journal of Emerging Technologies in Learning (iJET)*, vol. 2, No. 4, 2007.
- [5] Dunham, Ken; Melnick, Jim, "Malicious Bots: An Inside Look into the Cyber Criminal Underground of the Internet," 2008.