

A Study on the Conceptual Design of Smart App Authoring Tool

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Abstract

IT environment gets more complicated in terms of open platform, network standards, device design and hardware, etc. Smart network and application are in the fields of corporate as well as national competition for future fusion technology. In development environment focused on computers, the ideas of authoring tool have been presented in terms of improved software productivity. In smart environment where subdividing works are consecutively done, current authoring tool should be effectively updated for effective development of programs and easier access to business works. The basic concept of a new conceptual App development tool, Smart App Authoring Tool, which has been designed in this study and enables to apply on-site requirements to smart phones, is to develop Apps on the level using easy-to-learn Word or Excel in a computer. Therefore, this study is intended to design a conceptual Smart App Authoring Tool to optimize the cost and time for developing and maintaining new application services under various smart phone platform environments. Based on the performance of smart app authoring tool herein, every people can develop a smart app program at moderate level. So this paper have designed a conceptual smart app authoring tool. This study presented educational efficiency of the authoring tool by developing business Apps under various business environments and applying them under university and high school environments.

Keywords: App, Authoring Tool, Conceptual Design, Business App, Artificial intelligence engine, Business forms

1. INTRODUCTION

Smart network and application are in the fields of corporate as well as national competition for future fusion technology. Currently, online app store serves as key element in IT sector as it sells and provides mobile OS and contents for smart phone and application therefor[1,2]. The launch of Apple's iPhone fuels the use of smart phone, drastically changing global IT contexts. The world has triggering a new revolution to reestablish IT system based on smart phone and wireless internet across a wide array of industries and businesses[3].

IT environment gets more complicated in terms of open platform, network standards, device design and hardware, etc., and cut-throat competition is more accelerated among mobile top 3 players, Apple, Google and Microsoft with top notch technology, added by Samsung, ranked the world first in hardware manufacturing sector.

In smart network circumstances, the combination of hardware with software has a synergic effect, creating smart business power, which continues to be on the spot light. Hence, a future global IT leader is required to

have integrated technology and marketing power in a two-tiered IT business market.

2. RELATED WORKS

Let's look into development environment relating to smart phone. Smart projects were primarily led by developers specializing in platform dependent programming languages, Java, C++, or C#. Such traditional approaches are featured by :

Firstly, developers have less of project-specific knowledge and field experiences, leading to ineffective outcomes from subjective approaches and poor analysis.

Secondly, more of time and costs are often spent depending on the types of projects and the natures of developers.

An in-depth analysis shows that on-site knowledge was forced to be transferred to IT developers for a short period. As a result, new IT projects were not well developed, nor perfectly effective. Inefficiency results from the analysis and performance of projects in the same way as before, so requiring to be eliminated from current development environment in IT sector, independently from impending technology. It is also presently required to consider replacing IT expert developers with experts in the field works, in relation to developing applications[4][5][6].

3. CONCEPTUAL DESIGN OF SMART APP AUTHORIZING TOOL

3.1 TECHNICAL SPECIFICATION OF CONCEPTUAL APP AUTHORIZING TOOL

In development environment focused on computers, the ideas of authoring tool have been presented in terms of improved software productivity. In smart environment where subdividing works are consecutively done, current authoring tool should be effectively updated for effective development of programs and easier access to business works[3].

The basic concept of a new conceptual App development tool, Smart App Authoring Tool, which has been designed in this study and enables to apply on-site requirements to smart phones, is to develop Apps on the level using easy-to-learn Word or Excel in a computer. Therefore, the primary goal is to meet the six key technical requirements for App development like the technical specification of conceptual App Authoring Tool specified in <Table 1> and the ultimate goal is to design next generation Smart App Authoring Tool.

Table 1. Technical specification of Conceptual App Authoring Tool

No	Items	Next generation App Authoring Tool	As-is App Authoring Tool
1	▪Development by IT non-experts	●	◎
2	▪Provide Visual GUI tool	●	●
3	▪App window design only	●	◎
4	▪App function design only	●	◎
5	▪Automatic execution by artificial intelligence engine	●	◎
6	▪Provide business App development Infra	●	◎

● : Possible ◎ : Impossible

The background of software engineering for the objective of Smart App Authoring Tool is changes in App development environment to meet the smart environment. The code system and coding technology developed as a programming methodology in the software industry has been regarded as a regular and unique method for programming. Therefore, it is likely that the coding technology which is the unique methodology for software programming is not interested in the prospect that users of completed programs can easily learn and develop programs[25].

The coding technology is perfectly optimized to the structure and operation mechanism of the IT Infra such as hardware devices and operating system, which are the targets for implementing a desired function. Therefore, coding work has been done so that machinery can understand the operations to be implemented in accordance with the architecture and operation of computer.

Even to implement a single program module of a simple function, it is necessary to call functions or services provided by CPU, memory, disk, OS, DBMS, etc. using a program language such as Java, C++, C#, etc. It is needed to create source codes composed of several hundred lines up to several million lines to separately implement desired input/output windows and functions. Therefore, ordinary users could not easily learn programming tools and computer languages. It is difficult even for skillful users to actually develop programs and there is no way to avoid numerous errors and trial and errors.

While coding is the origin of the technology used in the software industry, it is exclusive possession of experts, expanding complexity of programs and obstructing efficiency. For customers who need project outcome, coding incurs unstable quality and numerous trial and errors due to the highest cost and time and restricted and incomplete functions. This is the most critical obstacle against success of business for software development enterprise. Therefore, this study is intended to design a conceptual Smart App Authoring Tool to optimize the cost and time for developing and maintaining new application services under various smart phone platform environments.

Key functions of conceptual Smart App Authoring Tool are categorized into 4 objectives as summarized in <Table 2> based on mobile extension and integration system configuration and interconnection, and the objectives are established such that development staff other than IT program experts can create smart phone Apps using the 14 functions.

Table 2. Objectives of key functions of Smart App Authoring Tool

No	Objective	Development (Main Function)	Status	Weight
1	Convenience	▪GUI for App program windows and function design	○	20%
		▪Implementation of business forms of high functions	●	
		▪Functions of artificial intelligence engine for automatic implementation of analyzing document windows and auto DB design	◎	
2	Utilization	▪Auto DB creation based on design map	◎	30%
		▪Packing App module for direct installation and execution in smart phones	●	
		▪Uploading packed App products and selling them in an open market	●	
		▪Development using state-of-the-art technology that does not require coding	◎	
		▪Development of business SW of various types	◎	

3	Functionality	▪Development even by non-software experts	◎	25%
		▪Establishing a system of new concept fully consolidating wired and wireless networks	○	
		▪Easy migration of legacy systems	◎	
4	Portability	▪Automatic implementation up to the data layer at program input/output window design	○	25%
		▪Automatic creation of various events and process control functions	◎	
		▪Wizard type database command operations	◎	
Total				100%

Importance ◎:Highly satisfied(95%) ○:Satisfied(85%) ●:Not satisfied(75%)

3.2 CONCEPTUAL DESIGN OF BUSINESS OPERATING SYSTEM

Based on the performance of smart app authoring tool herein, every people can develop a smart app program at moderate level or BOS (Business Operating System) for IT non-expert, which concept and function are described in <Table 3>.

Table 3. Objectives of key functions of Smart App Authoring Tool

Division	Description
Business Operating System	▪ Systematically provides technical elements and the conditions to develop and operate system necessary for establishing e-Business system in business contexts.
	▪ Manages, operates, and executes applicable software irrespective of hardware, communication protocol or DBMS, etc.
	▪ Provides the function and services for business service components (52 lines, 1177 ATOMs) for general purpose, perfect in the level of completion.
	▪ X-internet Platform solution structured by SOA (Service-Oriented Architecture)

3.3 KEY FUNCTIONS OF CONCEPTUAL APP AUTHORING TOOL

A comparison was made between BOS based approach and existing counterparts in developing smart app authoring tool, as described in <Table 4>.

Table 4. Objectives of key functions of Smart App Authoring Tool

Division	Existing tool & methodology (C, C++, C#, JAVA)	New concept tool & methodology (BOS, Authoring Tool)
S/W developer	Coding technician (expert programmer)	Requestor for needs (End user : retainer with work knowledge)
Executing objects	Hardware mechanism & control (Interrupt, Register, File I/O, DB I/O, Protocol, calculation, comparison, quarterly processing)	Use specific business objects (Document, document file, approval box, signature, fax, post box, cabinet/combo box, radio button)
Execution	Repeatedly executes similar modules/routines for performance of developed project.	Standardizes, optimizes functions for business works and for general purpose and supply in OS(BOS) (Developer only defines how to use functions in service)
R & D objectives	(HOW): Information Technology	(What): Industry Knowledge

4. CONCLUSION

Global trends are geared toward smart authoring tools that lead to outcomes extensively applicable to relevant businesses with a wealth of work practices and know-how. So this paper have developed and established a smart app authoring tool that suit the needs of the worldwide. In order to develop and makes fullest use of smart app authoring tool, different approaches should be appropriately employed, in consideration of the followings :

Firstly, it is required to have a close relation with legacy systems.

Secondly, developers are fully qualified to use office programs.

Thirdly, different programs should be also differently developed for business uses.

This paper have designed an smart app authoring tool whereby entire processes are made automatically only if screen and function options are presented rightly. Conventional flow for software development is implemented by 5 phases of analysis, design, development, testing and deployment and about 30 items. The development methodology presented in this paper implements development flow in 3 phases of analysis, design, implementation, testing and deployment, 6 process items and 2 automation items. Moreover, this study presented educational efficiency of the authoring tool by developing business Apps under various business environments and applying them under university and high school environments in order to review the performance and utilization of the implemented Smart App Authoring Tool.

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