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A Strategic Study on Scenario Based Design Method to Implement in Ubiquitous Systems

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ABSTRACT
Scenarios of human-computer interaction facilitate U.S.A. to know and to make laptop systems and applications as arti facts of human action —as things to be told from, as tools to use in one's work, as media for interacting with people. Scenario-based style of data technology addresses 5 technical challenges: situations evoke reflection within the content of style work, serving to developers coordinate style action and reflection. situations area unit directly concrete and versatile, serving to developers manage the fluidy of style things. situations afford multiple views of Associate in Nursing interaction, numerous sorts and amounts of description, serving to developers manage the various consequences entailed by any given style move. situations also can be abstracted and classified, serving to designers to acknowledge, capture, and apply generalizations, and to deal with the challenge that technical data typically lags the requirements of technical style. Finally, situations promote work orienting communication among stakeholders, serving to to create style activities a lot of accessible to the good kind of experience which will contribute to style, and addressing the challenge that external constraints designers and shoppers typically distract attention from the requirements and issues of the those that can use the technology. Scenarios area unit wide employed in the computer system style these days. The situations will throughout the cycle support the system development method since they provide a versatile tool for various functions within the development method. situations are often used either to gather a standard vision of the forthcoming system's stakeholders in a very cooperative project, or they'll be used as Associate in Nursing instrument in humane style method. situations are accustomed gift as an example a search organizations' or a company's future vision. This paper describes Associate in Nursing example of the utilization of situations in omnipresent computer system style.

Keywords :— Scenario, human-computer interaction, ubiquitous computing, human-centered design, pervasive computing, challenges

I. INTRODUCTION

The development has reached, over ever before, the vision of present computing introduced by Mark Weiser (Weiser, 1991; Weiser & Brown, 1995). The user's role is additional necessary and also the usage has become innovative and natural within the fields of mobile and wireless networks, GPS (Global Positioning System) instrumentality, sensible cards and RFID (Radio Frequency Identification) tags. totally different forms of social developments, as an example higher tolerance of video police work publically places, ar natural steps towards present computing. Designers of data systems and applications facea distressing reality. whereas there's many chance to try to to things that build a distinction, it's ne'er unequivocal simply what ought to be done, or perhaps simply what the $64000 issues ar. the issues will solely be definitively analyzed by being solved; the suitable answer ways should usually be dead so as to be identified; the solutions should be enforced.

Most package engineering ways belong to a method tradition that seeks to regulate the complexness and liquidness of style through techniques that filter the data thought-about and decompose the issues to be resolved. A complementary tradition seeks to take advantage of the complexness and liquidness of style by making an attempt to be told additional regarding the structure and dynamics of the matter domain, by making an attempt to examine true in many various ways in which, and by interacting intimately with the concrete parts of true. generally eventualities ar wide employed in computing system's development method as a tool to reinforce involvement of various stakeholders. Scenario supported design can originate from two different angles: fro m user's

point of view or from technological point of view. Although visions of ubiquitous and calm computing (also mentioned as pervasive computing, disappearing computing and ambient intelligence) are still quite young, they have already created challenges to the present design methods and evaluation techniques.

II. WHAT ARE SCENARIOS?

Computers are quite simply practicality. They ineluctably reconstitute human activities, making new potentialities in addition as new difficulties. Conversely, every context within which humans expertise and act provides elaborate constraint for the event and application of pc technologies. In analyzing and coming up with systems and software system we want higher means that to speak concerning however they will rework and/or be strained by the contexts of user activity: this can be the sole manner we are able to hope to achieve management over the "materials" of style. eventualities ar stories. they're stories concerning folks and their activities. as an example, AN controller desires to open a folder on the system desktop so as to access a memoranda on budgets. However, the folder is roofed up by a budget program that the controller desires to ask whereas reading the memoranda. The program is therefore massive that it nearly fills the show. The controller pauses for many seconds, resizes the program, moves it partly out of the show, opens the folder, opens the memoranda, resizes and repositions the memoranda, and continues operating .

III. SCENARIO-BASED DESIGN

A. Scenario as concept

Scenario as a term may be originally copied to the first theatre and/or film word. during this context state of affairs may be a word to the playscript, manuscript, copy or a script. Basic state of affairs parts (setting, actors, dialog, actors' goals, actors' plans and interpretation of things, actions, events and plot) square measure nearly same within the original notion and within the state of affairs definition applied as a technique in humanitarian development method (Rosson & Carrol, 2002). eventualities that embrace these parts and square measure utilized in human-centered style may be additional specifically outlined as user eventualities, use eventualities, usage eventualities or interaction eventualities.

Scenario idea is additionally typical to future studies wherever technical innovations, worth shifts, politics tides, environmental perturbations, economic developments, demographic patterns, and different trends of modification square measure examined. supported this knowledge researchers produce eventualities of potential various futures, that square measure then used as contingencies inside strategic coming up with initiatives.
In computer code engineering, the term "use case" is usually utilized in a trifle similar sense as "scenario" and these terms may be confusing. A use case specifies the sequences of actions that a system or a system performs once interacting with outside actor(s) (Jacobson, 1992).

B. Scenario as design method

Product development method may be a cycle wherever eventualities normally may be utilized in some ways. Throughout the first phases of the look method eventualities will as an example consolidate completely different stakeholders' read of the project and therefore the future. Eventualities will any be wont to build up a typical vision or a place to begin for the forthcoming activities and procedure within the system development project. during this approach eventualities square measure applied as a tool to assemble a typical image of the project's goals and aims additionally as prospects and limitations of the work to be done. Scenario building may be a thanks to generate style concepts for brand spanking new merchandise and to spot potential user teams and contexts of use for the merchandise. the look team will generate one or additional concepts (or system concepts) for the new system. the foremost possible ideas will then be elite for any elaboration toward user and application needs specification. the worth of eventualities is that they create concepts additional concrete and describe difficult and made things and behaviours in purposeful and accessible terms. it's usually easier and additional fruitful to come up with eventualities rather with a bunch of individuals than singly. Optimally the cluster ought to embrace folks with completely different expertise: designers, end users, application field specialists, promoting folks and value specialists. it's important to involve finish users within the state of affairs add order to come up with and refine the method and to enable real user feedback for the system development as early as doable. As a style instrument situations area unit stories concerning individuals and their activities in a very explicit things and environments (contexts). situations will be matter, illustrated (for example image books or comic strips), acted (for example dramatised usage situation) or recorded (for example videos) descriptions of usage things. Scenarios will be evaluated with potential finish users . each qualitative and quantitative ways will be used, betting on the goals of the analysis. Qualitative ways provide concrete feedback on the user actions conferred within the situations whereas

quantitative ways will be wont to rank totally different situations e.g. in terms of credibleness or acceptableness.

IV. USER-DRIVEN SCENARIO USAGE IN UBIQUITOUS COMPUTING SYSTEM DESIGN

A. Models

a. User-driven scenario-based design

The starting point in user-driven scenario usage is the current situation of the target group (Figure 1.). Designers collect user requirements for the early concepts via different methods. This approach fits very well to the situation where the current tasks (e.g. work) could be improved with the new technology. The background for this approach is in ethnographical studies of workers and in participatory design. (Suchman, 1987; Ehn, 1989)

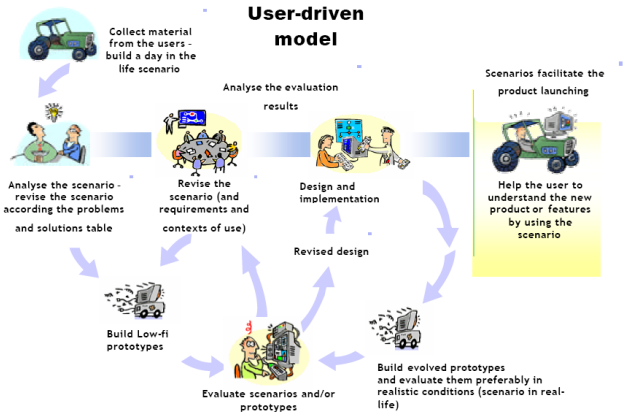

Figure 1: User-driven scenario-based design model

In planning omnipresent computing applications and future intelligent environments the user-driven case may be a terribly natural selection. The user need's assessment at the instant is a very important place to begin for any development method. The importance of understanding basic user wants (in these doable usage contexts) is but essential within the field of e.g. technologically embedded environments with unsettled users. This basic understanding of the user needs is vital in innovating new doable ways that to satisfy these wants. Then the doable application areas ought to be additional studied. The situations area unit currently added with the ideas of technological solutions to the doable issues of the analyzed scenario. However, if you have already got in your mind wide scope of applications, usage contexts and users and if the target is to style one thing for the longer term, the user-driven case ought to be assimilated with the assumptions of the predicted developed technological prospects.

Scenarios can even be used within the terribly finish of the merchandise development cycle. Launching new technological services and applications, that area unit discontinuous on the market, is usually troublesome. as an example the introduction of WAP (Wireless Application Protocol) and location-based services to the potential users suffered from failures in presenting these technologies plausibly to new customers. Similar issues wherever found once Interactive tv was introduced to the audience few years back. Similar issues wherever found once Interactive tv was introduced to the audience few years back. additionally understanding of potential users wasn't supported enough. Scenarios or usage stories of a service or an application could be used as a powerful tool to enhance potential user's understanding of the product (why to acquire the product and how to use it). (Ikonen et al., 2002)

B. Certainty check: some practical examples

MIMOSA is a project, which aims to make Ambient Intelligence a reality. The target is to develop a personal mobile-device centric open technology platform and to utilize MEMS (Micro Electro Mechanic Systems) technology. So far MIMOSA has addressed strong human-centred design approach and has used scenarios as a design instrument in the very early phase of both projects' concept definition and user requirements capture process.(Mimosa, 2004) The project has adopted hybrid approach (i.e. combination) of scenario-based design.

C. initial findings

The usage of the eventualities depends on what purpose you would like to use them. The eventualities as a versatile style instrument enable completely different stakeholders to utilize them in many various ways that. The eventualities are often used otherwise for various goals whether or not your scope is within the technology, within the user expertise or within the a lot of humanistic space. albeit the multidisciplinary style team may need completely different views and goals for {the style|the planning|the look} a similar design tool, eventualities may be primarily employed in completely different stages of the event method. The arch form of the planning method isn't a similar within the innovative and future oriented comes. In some cases you wish to start out with the assumptions of the applicable technologies and in some cases you purpose at the special user teams. In several cases you always ought to assimilate these views sooner or later. but scenario-based style approaches bring out affordances that may be used particularly within the building of early omnipresent computing ideas: to check and

develop these concepts in multidisciplinary style groups similarly as valuate them with users in democratic means.

V. CONCLUSIONS

Our objective during this paper was to encourage and preview a framework for managing style that accommodates the character of style drawback determination because it happens within the context of technology development. Our approach tries to facilitate versatile style actions wise to by reflection on multiple levels and from multiple views, as well as direct collaboration among team members. we have a tendency to argue that creating eventualities of use a focal style object serves this type of functions. In technology development comes eventualities area unit a versatile tool/method to be employed in varied ways that. what is more eventualities supply a perspective to the understanding of human behavior once there's no technology or application within the mind of designers. Scenario-based style is unquestionably associate applicable methodology for present ADPS style. this is often as a result of the planning is incredibly advanced in nature within the field of intelligent environments and pervasive computing. several users alternatives|et al.|et al} concerned in system style need special concentrate on tasks and other touching matters. ever-changing contexts, moving users, varied completely different varieties of devices and platforms challenge the system style because it is in current state. With varied usages of eventualities in present system style one will terribly quickly piece along the actions got to be taken into care.

REFERENCES

[1] Bødker S. and Iversen, O. (2002). Staging a Professional Participatory Design Practice-Moving PD beyond the Initial Fascination of User Involvement. *Proceedings of Second Nordic Conference on Human-Computer Interaction.* 11 – 18.

[2] Ehn, P. (1989). Work-oriented design of computer artifacts. Erlbaum. New Jersey.
Go, K and Carroll J,M. (2004). The Blind Men and The Elephant: Views of Scenario-Based System Design. *ACM Interactions*. Volume XI.6. 44-53.

[3] Hertzum, M. (2003). Making use of scenarios: a field study of conceptual design. *International Journal of Human-Computer Studies.* 58.215-239.

[4] Ikonen, V., Ahonen, A., Kulju, M. and Kaasinen, E. (2002). Trade description model helping the users to make sense of the new information technology products. *Proceedings of ECOM-02 2nd International Interdisciplinary Conference on Electronic Commerce*. Gdansk, Poland

[5] Jacobson, I., Christersson, M., Jonsson, P., & Overgaard, G. (1992). Object-Oriented Software Engineering: A use case driven approach. Reading, MA: Addison-Wesley.

[6] Jarke, M. (1999). Scenarios for Modelling. Communications of the ACM. January 1999/Vol.42, No.1. pp. 47-48.

[7] Kaasinen, E., Rentto, K., Ikonen, V. and Välkkynen, P. (2004). MIMOSA Initial Usage Scenarios. Retrieved January 13, 2005, from. http://www.mimosa-fp6.com/cgi bin/WebObjects/MIMOSA.woa/wa/default.Löwgren, J. (2004). Animated Use Sketches as Design Representations.*ACM Interactions*. Volume XI.6 22-27.

[8] MIMOSA (2004). Mimosa project description. Retrieved January 7, 2005, from ://www.mimosa-fp6.com/cgibin/WebObjects/MIMOSA.woa/wa/default.

[9] Rentto, K., Väätänen, A., Pekkarinen, L., Tuomisto, T., Cluitmans, L., Lappalainen, R. and Korhonen, I. (2003). Users' Preferences for Ubiquitous Computing Applications at Home. Lecture Notes in Computer Science.Publisher: Springer-Verlag, Heidelberg, Volume 2875 / 2003

[10]Rosson, M.B. and Carrol (2002). Usability Engineering. Scenario.Based Development of Human- Computer Interaction. Morgan Kaufman.

[11]Sotamaa, O. and Ikonen, V. (2003): Picturing the Future Personal Navigation Products and Services by Means of Scenarios. Mobile Data Management, 4th International Conference, MDM 2003. Melbourne, Australia.

[12]Strömberg, H., Pirttilä, V., and Ikonen, V. (2004): Interactive scenarios –– building ubiquitous computing concepts in the spirit of participatory design. Personal and Ubiquitous Computing. Vol. 2004 No: 3 - 4, 200 – 207

[13]Suchman, L. (1987) Plans and situated actions. The Problem of human-machine communication. Cambridge University Press.

[14]Weidenhaupt, K., Pohl, K., Jarke, M., & Haumer, P. (1998). Scenarios in system development: Current practice.IEEE Software 15(2), 34-45.

[15]Weiser, M. (1991). The Computer for the 21st Century, Scientific American, vol. 265, no. 3, September 1991 (reprinted in IEEE Pervasive Computing: Mobile and Ubiquitous Systems, vol. 1, no. 1, January-March 2002).

[16]Weiser and Brown 1995: M. Weiser and J. S. Brown, Designing Calm Technology. . Retrieved January 7, 2005,from: http://www.ubiq.com/weiser/calmtech/ calmtech.htm

[15]Ackoff, R.L. ÒResurrecting the future of operations researchÓ Journal of the Operations Research Society, 30(3), 1979, pp. 189-199.

[16] Ackoff, R.L. ÒThe future of operations research is pastÓ,

Journal of the Operations Research Society, 30(2), 1979, pp. 93-104.

[17] Brooks, F. *The Mythical Man-Month: Essays on Software Engineering.* Addison-Wesley, Reading, MA, Anniversary Edition 1995 (originally 1975).

[18] Carroll, J. M. *The Nurnberg Funnel: Designing Minimalist instruction for practical computer skill.* MIT Press, Cambridge, MA, 1990.

[19] Carroll, J.M. Ò Making *use* a design representationÓ, *Communications of the ACM, 37*/12, 1994, pp. 29-35.

[20] Carroll, J.M., Ed. *Scenario-based design: Envisioning work and technology in system development.* John Wiley and Sons, New York, 1995.

[21] Carroll, J.M. & Rosson, M.B. ÒUsability specifications as a tool in iterative developmentÓ, in H.R. Hartson (Ed.) *Advances in Human-Computer Interaction.* Ablex, Norwood, NJ, 1985.

[22] Carroll, J.M. & Rosson, M.B. ÒHuman-computer interaction scenarios as a design representationÓ, in *Proceedings of the 23rd Annual Hawaii InternationalConference on Systems Sciences.* (Kailua-Kona, HI, January 2-5, 1990). Los Alamitos, CA: IEEE Computer society Press, 1990, pages 555-561.

[23] Carroll, J.M. & Rosson, M.B. ÒDeliberated evolution: Stalking the View Matcher in design spaceÓ, *Human-Computer Interaction, 6,* 1991, pp. 281-318.

[24] Carroll, J.M. & Rosson, M.B. ÒGetting around the taskartifact cycle: How to make claims and design by scenarioÓ, *ACM Transactions on Information Systems,10,* 1992, pp. 181-212.

[25] Checkland, P.B. *Systems thinking, systems practice*. Wiley, New York, 1981.

[26] Churchman, W. 1970. Operations research as a profession. *Management Science, 17(2),* 37-53.

[27] Chin, G., Rosson, M.B. & Carroll, J.M. ÒParticipatory analysis: Shared development of requirements from scenariosÓ, in S. Pemberton (Ed.), *Proceedings of CHI'97:Human Factors in Computing Systems.* (Atlanta, 22-27March). ACM Press/Addison-Wesley, New York, 1997,pp. 162-169.

[28] Duval, S. & Wicklund, R.A. *A theory of objective selfawareness*.Academic Press, New York, 1972.

[29] Erikson, E.H. *Identity and the life cycle*. Norton, New York, 1980.

[30] Veikko Ikonen, *Scenarios in Ubiquitous Computing system Design: User-Driven vs. Technology-DrivenUsages*

[31] John M. Carroll, *Five Reasons for Scenario-Based Design;* Proceedings of the 32nd Hawaii International Conference on System Sciences – 1999.

[32] Venkata Rao (2012), *Explorations in community-oriented Ubiquitous Computing;* International Journal of Data Mining and Knowledge Management.

[33] Venkata Rao(2017), *A study on ubiquitous computing devices to conceptualize user needs;* International Journal of Modern Sciences and Engineering Technolgy.Vol:4 Issue:3 pp;38-42.

[34] Venkata Rao(2016), *The Essence Of Pervasive Computing In The Environment Integrated With Human Users* ; International Journal of Innovative Research Science and Technology.

[35] Venkata Rao et.al(2016), *Visualizing the computing in Ubiquitous Environmennt;* International Journal of Science Technology and Engineering. Vol:2 Issue:11