

# Smart Product line model for fire brigade service to assist civilians

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## Abstract:

*Fire brigade End user architecture for smart communication environment aim to enable, create, deploy and allow software application for smart spaces which assist civilians and fire brigade. Helping civilians in their routine task is the duty of the fire brigade service. These assistances include accidental care, fire care, earth quake care and another volunteer care. Advancement in technology and improvement in graphics in software industry has already helped in improving the communication and ways of solving problems. The application that can be developed for Fire brigade service has specific model and features inside it. This paper focuses on discussing the SPL models for the fire brigade application. This paper presents the framework that was developed considering application derivation and product line process.*

**Keywords :** *SPL, Fire brigades, End user, Architecture, Assistance, Accidental Care, routine task, volunteer care*

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## **Introduction:**

Smart spaces which are regarded as the smart environment. Smart environment contains sensing systems (both visual and audio) and it contain devices, sensors, network (that connects devices). This smart set of sensors is interactive and response to the change in environment. Different authors have proposed different various End user (EU) algorithms and

architectures in their smart environment (kindberg,2002). These types of architecture are mid-way and act between the software applications and deployed devices. Example of this types are Team computing and Puzzle which involves EU architecture.

While developing the application considering EU architecture, the specific class of End users need to be consider only. All the class of end user, which are the part of smart spaces, need to be ignored. Summing up this, it can be said that device capabilities vary and the variation in device capabilities needs to be considered. Considering the requirements and algorithm designing for the end user helps in making smart spaces environment which is useful and efficient in performance. Software product line (SPL) techniques and methods addresses the use of software development and analyzation as they are being the variable parts of family of systems. Most of the software development methods that are available these days target software engineer and professional personals and the process to test these applications are rigid. In short, it needs experienced person to test the application. The end user environment for the previously developed applications was not that attractive and only the person who is skillful in quality testing can only test the application and use the application interface. In addition to that, Product derivation is a traditional SPL approach and to modify this approach, it must be complied with SPL architecture.

EU approach is smart, and it provides range of light weight features for end spaces, thereby addressing the dynamic range and nature of these environments. In general, EU SPL approach extends the previous EU architecture, thereby making them smart and customizing them so that it can be used for various families of applications. SPL designers mostly work considering technical requirement and don't consider EU. Therefore, the approach needs to be consider using EU with personal or commercial purposes.

This research works contains discussing the requirements for the fire brigade service. Assisting civilians in their routine tasks is the utmost and the foremost duty of the civilians. The world is technologically developing, and people are using more and more software to assist their routine and scheduled task (Tzeremes, 2016) . Software the computers are the part of the daily life. Therefore, the part of this research is to present the model for the Fire brigade application. This research also investigates the extension of EU architecture toward meta-models to support the creation of EU SPLs. The discussed approach is platform independent and considering that approach, the model has been presented.

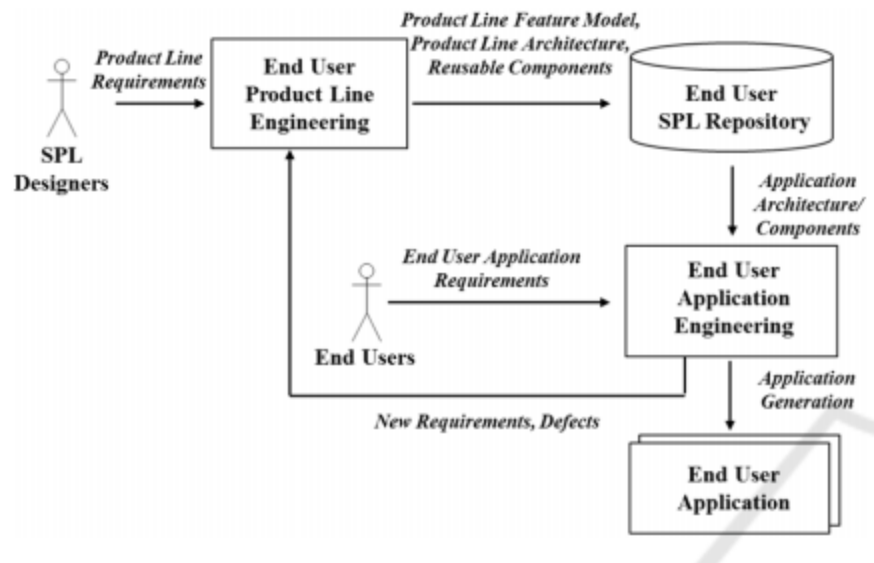


Fig.1. End user product line process.

## Related work:

Different Authors have proposed different approach to the solution regarding developing the smart environment. Some of the approaches that have been proposed in past are JAF (Bardram, 2005) and Smart Products (Muhlhauser, 2008) have done in their solutions to the smart environment problems. Some of important EU architectures are Puzzle (Danado, 2012) and TeC. This research focus is to present the solution the approach of developing smart environments for fire brigade service. The aim involves developing a smart means of communication.

Model driven Approach has been developed on automatic transforming models (Debnath, 2008).

## Proposed Solution:

Various characteristics and design of the model can be considered while proposing the solution approach for the smart environment. The primary focus of this approach is to propose the smart design for this fire brigade application.

### *Software product line:*

The software product line approach targets the mobile devices. The initial idea is to design the application for the mobile devices (Specifically Android and ios)

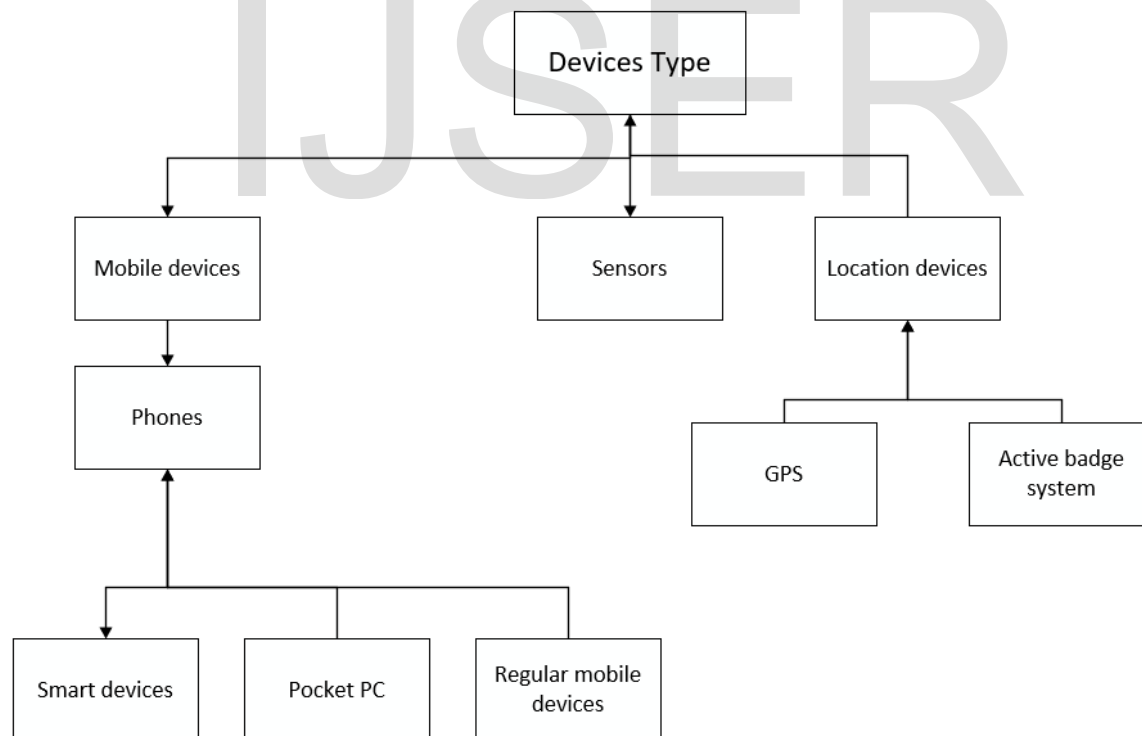


Fig.2. Software Product lines.

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