

## Improving Memory Exploitation in M-health Applications through Context-Aware System

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### Abstract

**INTRODUCTION:** The mobile application requires some information about its environment in order to the adaptation of its behaviour according to this information in a transparent manner. However, such a task usually needs the resource consumption of mobile devices.

**OBJECTIVES:** the main goal of this work was the design of the context aware infrastructure for the healthcare applications embedded on mobile devices. This last aims to the integration of the context awareness into the execution environment and providing a adequate methodology of the generic context manager, with the maintenance of low level the resource consumption.

**METHODS:** This collected the context information (medical data) thanks to the component (Context Element Monitor). When the components set acquire values of different elements context which belong the same class, these components run in the same time. it is mean the execution of its in a group way. From the state of monitors (ACTIVE or DISABLED), our system creates the new context situation. The mobile application is structurally an assembly of services. The adaptation methodology revolves around the execution manager of services according to the new created context situation. This approach ensures the best use of resources depending on the characterization of context and reduces the amount of contextual information in the adaptation processes.

**RESULTS:** We evaluated a memory space in three cases, since it is the most resource that is affected in the field of the mobile health (mobile patient monitoring application). For this, we estimated the consumed memory at two levels: the first is the management module "Context Manager" and the second level considers the adaptation procedure. In the Context Manager, the first and the third case were the exploited memory space was almost identical, Knowing that its consumption is varied between 1556 and 2026 KB. But in the second case, it increased and become varying between 2424 and 6848 KB. the other hand, in the adaptation mechanism, it is necessary a huge space of a memory for managing services more than 40000 kb.

**CONCLUSION:** Our own approach of context manager and adaptation can open the new way in the m-health applications development. This allows these applications that can exploit the great quantity and the different type of a medical data with the best use of the memory space.

**Keywords:** Context Awareness, Resource Consumption, Mobile Health.

Received on 14 January 2021, accepted on 28 January 2021, published on 07 April 2021

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doi: 10.4108/\_\_\_\_\_

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### 1. Introduction

Nowadays, most people use their Smartphone in their daily activities such as health, education, transport, etc. In this

range, these applications can use in different domains by its installation on Smartphone. Unfortunately, this has had a negative effect on the capacity and the speed of the mobile device for running these applications. However, unquestionably, the success of these applications resides in

















