



# SOS Oman

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Providing first-aid on time can help in saving many lives, in 2015, specifically on the street between Ibri and Al-Rustaq, the weather was rainy, and suddenly one of the vehicle rollovers from the street. The passenger's injury was not so serious and his life could be saved if he had received proper first-aid on time, but because the accident happened in a rural area far from the city center, aiding him delayed, and because of that the passenger died on his way to the hospital. In such situation volunteer paramedics can be a helpful support for the emergency centers involved in the response to such accidents reports. In the project a mobile android application will be developed, through this application volunteer paramedic will be registered and their GPS coordinates will be included by one of the staff at the civil defense. The users of the application will be able send notifications in case of any emergency situation for the Civil Defense and for the nearest volunteer paramedics at the same time. The notification sent includes a brief description about the emergency situation, contact information of the sender and the GPS coordinates. The system will automatically detect the nearest volunteer paramedics and notify them about the emergency situation. This will be helpful in providing faster assistance at the emergency site by the volunteer paramedics and hopefully it will help in saving more lives. The system and the android application will be used by the civil defense in the sultanate of Oman, volunteer paramedics, residents and citizens.

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## Introduction

According to the United Nations Population Fund, more than half of the world's population lives in urbanized areas, approximately around 3.3 billion people. Further, by 2030, roughly 66% or 5 billion people will live in urban areas (United Nations Population Fund, 2016). However, this is not about managing that huge number of humans but it is about rising the challenge and turning the technologies to another level. Innovating and creating smart devices with artificial intelligence is a necessary requirement that must be done in an accelerated manner to improve smart city transportation, health care, education, and housing as well.

Nothing is more important than saving lives, so the most essential organization in any city is the Civil Defense and Ambulance center. Civil Defense and Ambulance center is playing a rule in keeping citizens save and protecting their lives by responding for any emergency situations as fast as they can. As Majed Al Hashmi (interview, 30 June, 2019) said, in some situations they are incapable of reaching distant places using Civil Defense vehicles so they call the central civil defense center in Muscat to send helicopter, and normally it takes around forty-five minutes to reach the site. Finally, the Civil Defense and Ambulance team are working hard in order to serve people without thinking of their lives or any dangerous situations that might affect them negatively (pacdaoman 2010, 'Civil Defense and ambulance', Para. 1).

One of the applications that assist public moving from traditional to civilization cities is Oman Emergency. SOS Oman is a free application that allows people getting the medical assist faster than ambulance by involving the citizens. Furthermore, that application allow anyone with an emergency to ask for help either in car accident or in any health crisis, and it send an alarm and the location for the nearest paramedics and for the Civil defense and ambulance Centre, the paramedics will be capable of reaching for the place faster and provide the first aid that is needed



to save the life of injured person.

## **Description of the Current Situation**

There is no software system in Oman that serves citizens in responding to emergencies. Except for the emergency numbers for each area and the headquarters in Muscat, and of course, most of the citizens know only the 9999 number, which is the emergency number centralized in Muscat. This contributes to the delay in the arrival of assistance to the injured person because the emergency center in Muscat shifts it to the city where the emergency happened which is time consuming. On the other hand, the civil defense relies entirely on the description of the caller to determine the location of the incident and sometimes the caller doesn't give an exact location, which delays the civil defense and ambulance in arriving. In addition, some cases require moving a helicopter for helping. The helicopters take more than two hours to get to the scene and there are limited number of helicopters in Oman specialized for emergencies. Finally, the civil defense does not have enough details of the incident, so they don't bring the necessary tools for the incident which is wasting time.

## **Objective of the SOS Oman**

### **The main objective to create an application for emergency:**

- Create smart application that Serves civil defense, citizens and residents
- Pinpoint the location of the effected person through the connect with GPS
- Saves time and effort for civil defense
- Helps the defense identify the tools to help the injured
- Activating the role of volunteers in helping the injured
- Provision of emergency numbers of all units
- Educating people about ways to deal with accidents
- Save people life

### **Functional Requirement:**

- Detecting nearest paramedics' location and send notification for them.
- Specify location with coordinate.
- Allowing users sending notification for the emergency center and nearest paramedics in parallel.
- The application should be connected with the database.
- Ensure that users and paramedics register using valid data.
- Ensure that four paramedics accept going to the emergency site then hide the alarm for other paramedics.



- Send personal details of users for the emergency center when they send alarm.
- Login
- Enter data (civil id, phone number...etc.).
- Cities contact emergency number.

## **Non-Functional Requirement**

- The application should be easy to use by different kind of users.
- The application should response in short time.
- The application should run in background for location detecting.
- The application should detect the right location of the users.
- The application is available in mobile phones so users can carry it anywhere.
- The system has a backup in case of any disaster.
- The used colors are clears for all users.

## **Experimental Procedures**

This study used Quantitative research. In addition, simple random sample of adult people being used to answer this survey. 20 people has been selected to answer this survey.

**Figure Legend Diagram Which show how the system move and how paramedic, reporter and application interact with each other.**

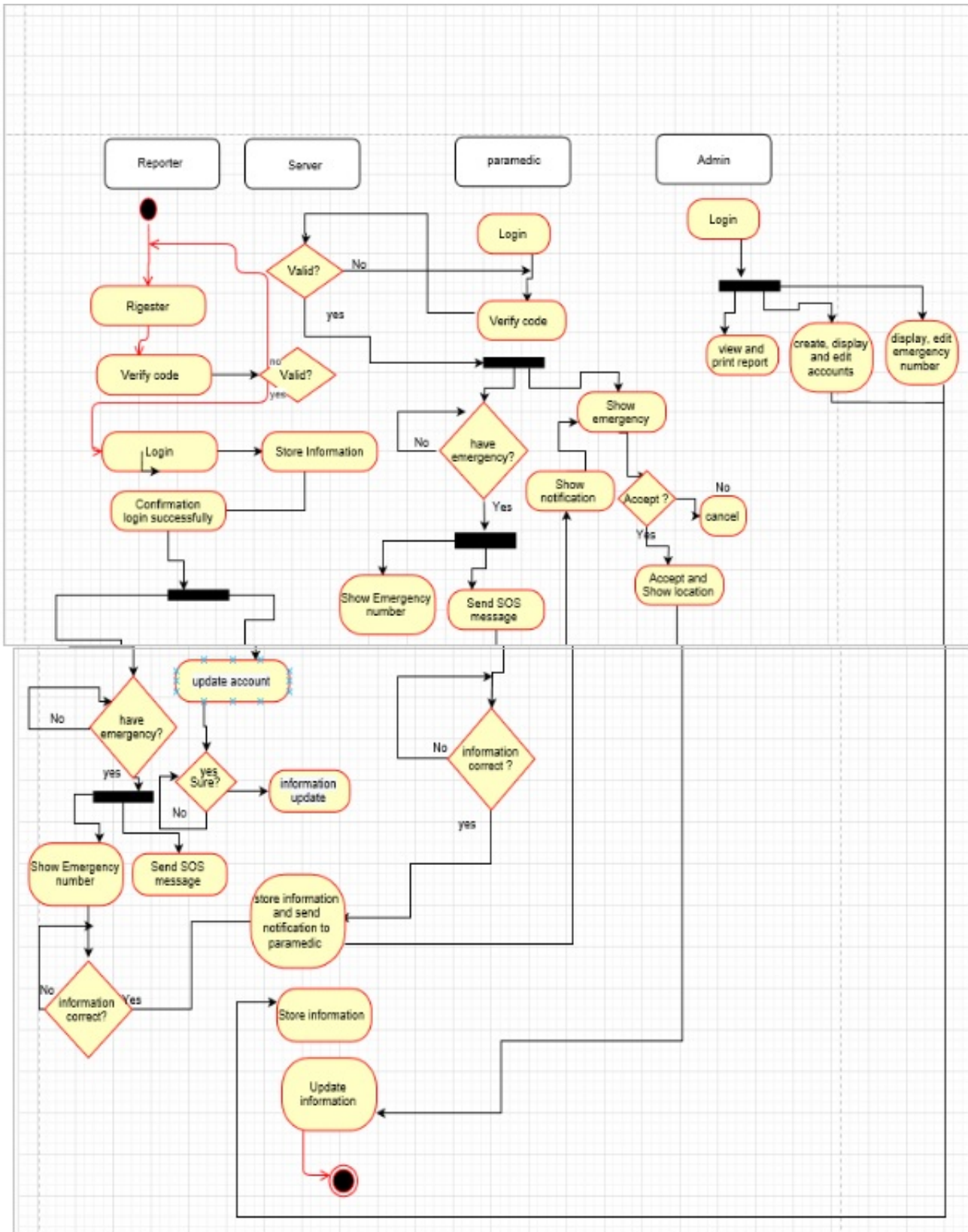
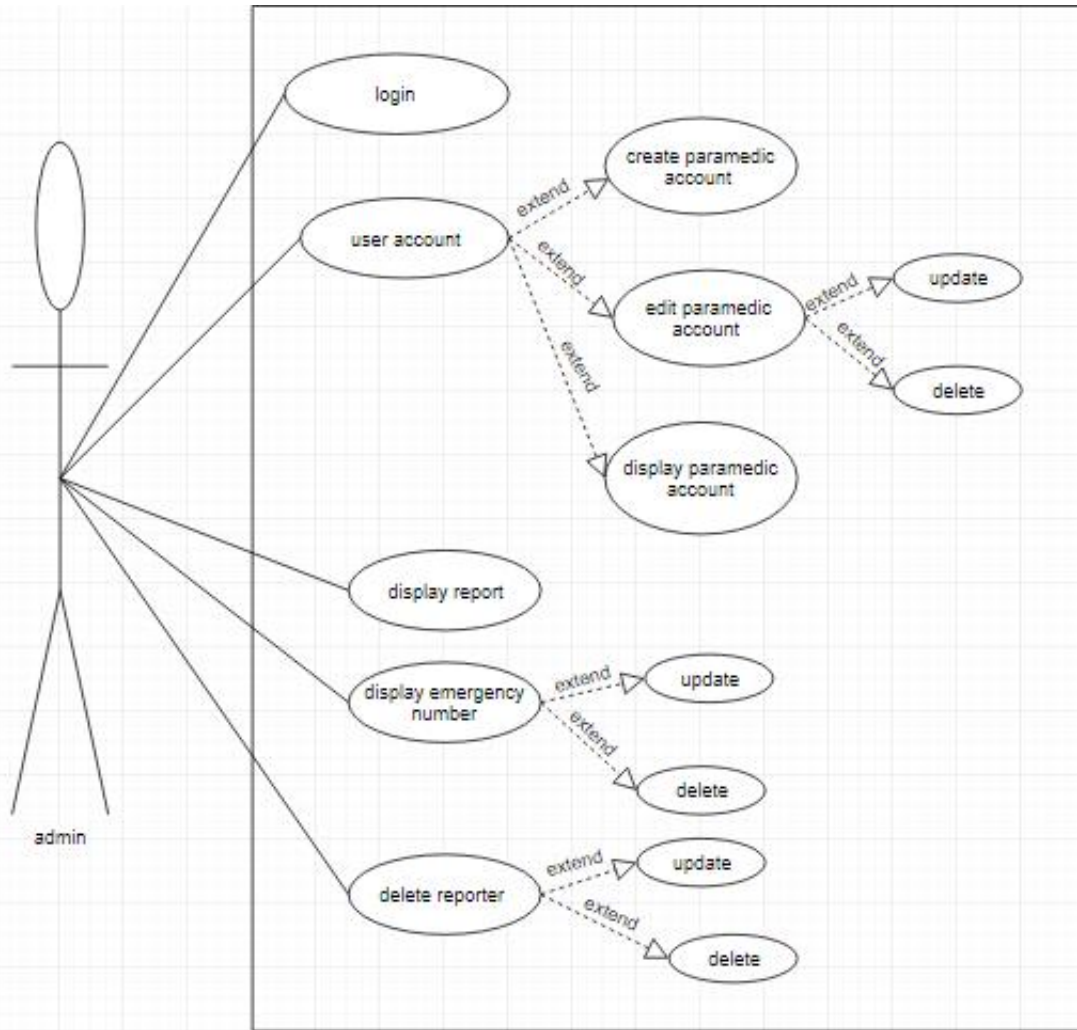


Figure 1. Activity Diagram



**Figure 2.** Use case Diagram It shows what each user can do.



**Figure 3.** *logo* Logo of SOS Oman Application.

## Experimental Procedures

The old defense system has many vulnerabilities, so there must be a new system because, the old system does not keep pace with development as it does not use modern technology but civil defense uses the traditional method of receiving notification of injured people. The old system leads to delays in the arrival of aid, as Mr. Majid said that helping may take more than an hour to reach the scene, but for the new system it contributes to the arrival of defense cities or volunteers for the wounded as soon as possible. The new system also contributes to locating the injured person by sending notification.

## Results

From the survey, most of people support using application instead of using normal calling which is call 9999.

## Discussion

**This research focus in if people have knowledge about an emergency number if they face an emergency and their opinion about using application instead of call 9999.**

The first part of questionnaire discuss if people know the emergency number in Oman. The majority of people don't know the emergency number for their city. They only know 9999 which is an emergency number Muscat.

Question	Yes	No
Do you know the emergency center phone number?	85.7%	14.3%
Do you know that the public emergency number (9999) used in Oman is for an	71.4%	28.6%



emergency call center in Muscat?		
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**Table 1.**

Second part of questionnaire discuss if people will face any difficulties in reporting emergency case. Most of the answer say that, most of the difficulties that they will face is late response.

Question	Yes	No
Do you think that you will face some difficulties in reporting an emergency case?	42.9%	57.1%

**Table 2.**

100% of the answer agree that using Arabic language not enough to accept an emergency call.

Question	Yes	No
.Do you think that if the emergency centers accept calls using Arabic language only is enough to deal with all emergencies cases?	14.3%	85.7%

**Table 3.**

Describe the location of emergency case will not always give the exact location and 70% agree with that and support using GPS coordinator as alternative.

Question	Yes	No
Describing the emergency location depending on the caller's description will always give the exact location?	28.6%	71.4%
Would using GPS coordinator is a better alternative?	100%	0%

**Table 4.**

The sixth question is about using volunteer paramedic as part of providing help will serve people more. 85% of people agree with arrival of volunteer can save people life.

Question	Yes	No
Faster arrival of volunteer paramedic to the emergency location will assist in saving more human life?	83.3%	17.7%

**Table 5.**

n term of provide help for people with hearing and speaking problem, 90% say that calling 9999 will not serve these people when they are alone.

Question	Yes	No
Do you think that the current civil-defense system related to reporting emergency cases using a phone call is suitable for people with speaking and	71.4%	28.6%



hearing problems?		

**Table 6.**

Nowadays, most of the people are having smart phone and have an internet connection so, the majority support using a mobile application for sending location of emergency case. Also, this application will serve people with hearing and speaking problem.

Question	Yes	No
Do you have a Smart phone?	100%	0%
Do you have an internet connection on your smart phone outside home/work?	100%	0%
Do you think that using a smartphone application will enable people with hearing/speaking challenges to report emergency cases?	85.7%	14.3%

**Table 7.**

Finally, SOS application may help to save more people life and majority of people agree with that.

Question	Yes	No
Do you think that using a smartphone application that enables providing the exact GPS coordinates of the emergency site would be a better alternative of describing the location to someone who might be unfamiliar with the area that you are describing?	100%	0%
Do you think using a smartphone application that enables you to report an emergency case using English /Arabic language is better than the existing system that is based on Arabic language only?	85.7%	14.3%
Do you think that using a smartphone application will be beneficial for the society and might save more lives compared to the existing civil defense system?	100%	0%

**Table 8.**

## Conclusion

In conclusion, SOS Oman is a mobile android application and a system that aims to save humans live by providing faster first-aid in any emergency situation. Further, SOS Oman enables the users sending notification in case of any emergency situation for the civil defense and for the nearest volunteer paramedics at the same time. The sent notification includes a brief description of the emergency situation, contact information of the sender and GPS coordinates of the emergency site. However, involving volunteer paramedics in emergency response is helpful in providing faster assistance at the emergency site, paramedics are capable of reaching the emergency site faster than the civil defense especially in distance places. Finally, the system and android application will be used by the civil defense in the sultanate of Oman, volunteer paramedics, residents, and citizens.

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