

# Smart Water Management System (SWMS) by ICT In Real Time

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**Abstract:** This paper presents an innovated smart water quality and quantity management system. The proposed system is developed using Information and Communications Technology (ICT) tools and equipment, which adds an innovative touch that makes the system more efficient and intelligent. The Smart Water Management System (SWMS) addresses challenges in fresh water filtering stations, and solve big problems are existed in those stations. The status of water filtering stations, there are no information regarding the quality and quantity of water in on those stations, there is no accurate measurements showing if the water is drinkable or not. At this point, there are no any digital measurements regarding the quantity of fresh water in those stations. This means that the water might be consumed any time before the owners realized this. This may cause risk to the lives of people who drink this water. On the other hand, the existed systems do not record the quantities of water treated by the station, which could cause financial loss to the station. Regarded to these challenges, SWMS examines the basic components that cause water pollution using different sensors such as: pH sensor, Total Dissolved Solids (TDS) sensor, and Ammonium (NH<sub>4</sub>) sensor, Sodium (Na) sensor and Chloride concentration (Cl) sensor. Moreover, SWMS records the amounts of water entering and leaving the station in order to prepare different statistics and reports using these values. Finally, the proposed system can be a part of a smart city and smart building. These challenges are that the traditional systems of water filtering stations that have been adopted in most developing countries do not examine whether water is polluted or not.

**Keywords:** ICT in water, Smart city, Drinkable Water, Stations, Sensors for Filtaring Water, Water management, Water quantity, Water quantity.

## 1 INTRODUCTION

Smart water management solutions are important especially with the development of communications technology [1-3]. In most developing countries, per capita water is relatively low [4]. This is due to: limited water resources[5], an increase of population and refugees, a widening gap between available water and demand, and a decrease in rainfall [6]. It is worth noting that water resources are relatively low. Consequently, water pollution causes the loss of this resource to the country in general [7][8]. With all these reasons, there is a need for intelligent water management to reduce and maintain wastewater [9][10] based on different ditial sensors and main board that measures and take decision to the correct operation of the of the system. The proposed system is like the bellow figure.

