

# Design a sturdy and secure authentication scheme capable of early detection of COVID-19 patients using WBANs

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## ABSTRACT

COVID-19 was first reported in China Wuhan and rapidly grown up to more than 58 countries based on the World Health Organization (WHO). Well ahead of any health emergency, the health care server has the ability to access these data via authorization and then s/he performs necessary actions. In order to protect medical data from malicious activities, authentication is the starting point for this. Authentication systems represent a network support factor to reduce ineffective users and radically eliminate phishing because authentication determines the identity of the real user. Many schemes and technologies have been suggested for authentication in wireless body area networks (WBANs). In this paper, we suggest a strong dynamic password authentication system for WBANs. We adopt a (different/new) way to calculate a password and make it coherent and dynamic for each login session. Our work also provides additional security properties to get rid of hub node impersonation attacks and resolve key escrow issues. Our scheme resist fishing attack which keep patient from any illegal change of drugs. By comparison, the proposed scheme is considered active and has strong security based on formal security analysis tools such as AVISPA.

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## 1. INTRODUCTION

The World Health Organization (WHO) caught the first COVID-19 case in China Wuhan on the morning of 30 January 2020 [1]. From this date right the moment writing this paper the pandemic has spread to more than 75 countries (World Health Organization). The number of cases confirmed by corona virus was around 93000 offered the entire world by the end of February. This kind of disease is one of the most dangerous infectious due to the rapid spread and transmission of infection and because it not usually expected in a particular community geographical region, or time period. Therefore the world requires immediate action to prevent the pandemic at the community level [2], [3]. Information technology works hard to tackle this COVID-19 by developing several apps analyzing the patient data for pre prediction. The development in wireless communication technologies and information technology has affected all aspects of our daily life: scientific, social, health and industrial. In the era of innovative technology, cloud computing, internet of things (IoTs), and big data are available to people to benefit from their services and applications, for example, the need to go to the hospital and other medical care centers for regular medical examinations has diminished. Based on the medical care side, we note that there is advanced technology development in the