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Implementation for Soldier Communication Based on Session Initiation Protocol: A Systematic Literature Review

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Abstract

In tactical networks, group conversation programs are needed, which includes positioning and sharing of information (Situational Awareness information) and Push-to-Talk voice conversation. VoIP has a kind of protocol in order that conversation with the IP network (internet) can engage with every other (connect). There are numerous protocols that have emerged, however together with the improvement of conversation that requires performance and decrease costs, the VoIP protocol emerged, particularly SIP or Session Initiation Protocol. The capability of the SIP protocol can be very appropriate to be used as communication amongst army forces in forested battle areas. The purpose of this paper is to provide an entire and primarily based totally analysis, now no longer best of strategies however additionally of information sources, objectives, date ranges, sorts of information, information frequency, and size accuracy. The paper additionally identifies a few last troubles to be solved as destiny instructions for SIP-primarily based totally soldier communications programs research. There are sixteen recent research on soldier communication from 2016 to 2021 with the shape of a scientific literature review.

Keywords
SIP; soldier communication; VOIP; manuscript word count

I. Introduction

Since its creation withinside the past due 1990s, the idea of community-focused operations to allow facts sharing has been a essential detail of the imaginative and prescient of army businesses across the world (J.Roshenburg, 2002). As the complexity of the operational surroundings increases, army conversation community era should provide key traits inclusive of self-agency and decentralization, which will boost up the waft of facts and growth situational awareness. In addition, given the fast evolution of business conversation community era, and the programs and offerings that make use of it, army businesses are more and more seeing the realistic adoption of commercially feasible communications era. This is specially proper in mobile wireless communications on the coronary heart of tactical army operations and has visible such fast adoption with inside the business space (Maseng et al., 2010).

Business is the presumption that in making business decisions not involving direct self-interest or self-dealing, corporate directors act on an informed basis, in good faith, and the honest belief that their actions are in the corporation best interest.(Ansari, T. 2019)

In tactical networks, organization verbal exchange programs are needed, which includes positioning and sharing of information (Situational Awareness statistics), and Push-to-Talk voice verbal exchange (Larsen, 2010). VoIP has a kind of protocol in order that verbal exchange with inside the IP network (internet) can have interaction with every different

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(connect). There are numerous protocols which have emerged, however at the side of the improvement of verbal exchange that calls for performance and decrease costs, the VoIP protocol emerged, specifically SIP or Session Initiation Protocol. SIP does now no longer offer offerings immediately however offers offerings that may be utilized by different software protocols to offer a greater whole provider for users, as an example with RTP (Real Time Transport Protocol) for realtime statistics transfer, with SDP (Session Description Protocol) to explain sessions. Multimedia, with MEGACO (Media Gateway Control Protocol) for verbal exchange with PSTN (Public Switch Telephone Network).

Thus, the basic features and operations of SIP are unbiased of those protocols. SIP also does now no longer depend upon the shipping layer protocol used. The functionality of the SIP protocol could be very suitable for verbal exchange among troops in forested war areas. This paper ends in the development of a Soldier Communication-based definitely communication application in the following segment, these paper units out a scientific literature evaluate methodology. Section three reviews information extraction consequences from 15 researches that met the criteria. Finally, segment four offers a precis and conclusion.

II. Research Methods

2.1. The Systematic Review Process

A systematic literature evaluation is a manner of identifying, comparing and decoding all to be had studies applicable to a selected reaserch question, or subject matter area, or phenomenon of interest (Kitchenham, 2004) The normal shape of this evaluation follows Kitchenham's guidelines (Kitchenham, 2004). Independent replication desires to be performed to distinguish an tremendous systematic evaluation from a ordinary literature evaluation to have tremendous scientific price variations (Staples & Niazi, 2007)

2.2. Identifying the Systematic Review Needs

This SLR targets to discover the most important conceptual contributions to the improvement of Soldier Communication in latest research (2016-2021). Likewise, it moreover explores proposals published to get steering on what research can be performed for the future. Furthermore, the time- collection facts used for forecasting is being similarly investigated.

2.3. Research Question

The maximum critical detail in a scientific literature assessment is research questions that manipulate the assessment because of the truth they specify the assessment's scope and the impact of the study's inclusion criteria (Staples & Niazi, 2007). The questions in Table I could be spoke back on this assessment:

Table 1. Research question (RQ)

ID	Research Question	Objective
RQ1	What new method are currently used for Soldier Communication development in the range of 2016 to 2021?	It is crucial to analyze the wide variety of research on soldier communication technology systematically mentioned the literature.
RQ2	What object of research trends are used in network Soldier comunnication development?	RQ2 is prompted through the want to find out the means Through which the researchers carried out and said the Existing soldier communication technology in the literature

RQ3	What proposes parameters used in SIP for Soldier Commmunication?	The motivation for RQ3 is to cope with the fulfillment and outcomes of present research on SIP era to have a clearer knowledge of ways every of the suggested research on SIP era addresses the desires of the military.
RQ4	What are the constraints of the contemporary SIP generation research?	Identify research gaps that may be used for similarly research.

2.4. Search Process

The searching for method is done manually on papers posted among 2016 and 2021. It is performed the usage of the IEEE bibliography as the biggest database of peer- reviewed research literature. The searching for requirements were used TITLE-ABS-KEY (Soldier Communication).

2.4. Inclusion and exclusion criteria

An inclusion criterion for this research have become defined, the article proposes fashions for Soldier Communication. While the exclusion standards for this research are as follows:

- Paper with incomplete Soldier Communication records.
- Paper without a size accuracy.
- Review or survey paper.

III. Results and Discussion

The software program of are seeking strings withinside the IEEE gadget robotically brings up 433 publications from 1982 till 2021. After restrict to simplest the yr 2016 till 2021, 15 publications were obtained. After that, manual inclusion and exclusion requirements resulted the very last 16 articles. The very last effects of the are seeking are indexed in Table II.

A RQ1:What new method are currently used for Soldier Communication development in the range of 2016 to 2021?

For the development of research on mlitary communications from 2015-2021, many have used wireless technology as shown in figure 1. Such as WSN, local wireless communication LPWAN, Low Power Wide Area Networks (LPWAN) Wireless Body Area Networks (WBAN), Software Defined Networking (SDN) and Network Functions Virtualization (NFV) which aims to develop military communications (Lazzaro & Ploskonka, 2016) (Jethwa et al., 2020) (G. Santhanamari, P. J et al., 2020), (S. Harsha et al., 2019),(J. J. Kang et al., 2020) (Śliwa, 2019). The method of using IoT technology is still using GPS, GPRS, or a network connected to the internet [14][18][20]. While the use of VOIP technology as an army communication tool has not been further explained. The summarize is showing in Figur 1.

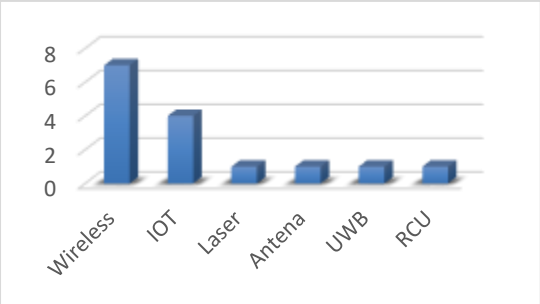

Figure 1. *Method used*

B RQ2: What object of research trends are used in network soldier comunnication development?

There are four groups of objects of research based on the data obtained, health monitoring, communication, tracking and laser (sensor). While in this study focused on communication technology. From the quest effects acquired numerous verbal exchange improvement technologies, particularly Intra-Soldier Wireless (ISW), Low Power Wide Area Networks (LPWAN) and Wireless Body Area Networks (WBAN) nearby wi-fi verbal exchange (Intranet). Software Defined Networking (SDN) and Network Functions Virtualization (NFV) (Lazzaro & Ploskonka, 2016), (G. Hota et al., 2019), (J. J. Kang et al., 2020)(Śliwa, 2019). The summarize is showing in Figur 2.

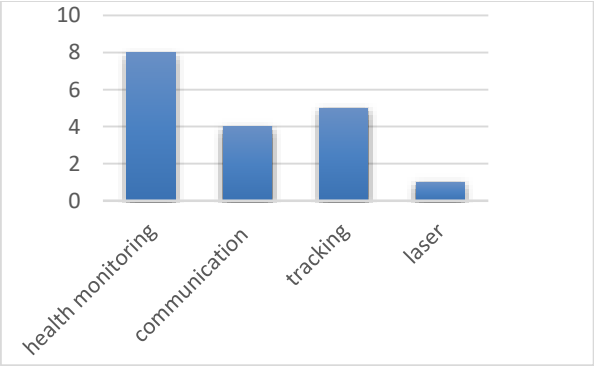

Figure 2. *Object of Research*

C. RQ3: What proposes parameters used in SIP for Soldier Commmunication?

Quality of provider VoIP (Voice Over Internet Protocol) or Qos (Quality of Service) is the cappotential of a community to offer offerings that higher at sure records visitors on numerous sorts of era platforms. QoS now no longer received immediately from the prevailing infrastructure, however received immediately through enforcing it at the community in question. VoIP utility is an utility in actual time, so it can't tolerate delay (inside sure limits) and packet loss. Delays may be minimized through the usage of packet switching era in place of records switch. Another manner that may be carried out is to optimize the use bandwidth, set the queuing technique used and use protocols control protocol to control records packets which might be passed. QoS in IP Telephony are parameters that suggest the fine of community records packets, in order that the sound effects are similar to the usage of the Public Switch Telephone Network (PSTN). Multiple parameters that affect QoS include:

• Throughput, End to end delay, Packet Loss Rate, Jitter

D. RQ4: What are the constraints of the contemporary SIP generation research for soldier communication?

Session initiation protocol (SIP) has capability to be decided on as a manipulate aircraft signaling protocol for handing over real-time multimedia packages in army networks. It is vital to observe behaviors of SIP and SIP-primarily based totally real-time packages as nicely as to recognize their barriers in a tactical community environment (Zheng, 2009). In a tactical community, mobility is essential. The mobility entails person gadgets and community gadget movements. The community mobility could effect the organizing and formatting of community architectures whilst nodes are moving. A mobileular node must be to be had from one of a kind nodes even though a network attachment is changed. In addition, the ongoing communique must be reliable and standard overall performance of the communique must be stored at a normal level before, during, and after the node movement. All those necessities gift particular demanding situations to tactical networks. Considering the truth that Session Initiation Protocol (SIP) has been decided on as a manipulate plane signaling protocol for turning in real-time multimedia applications, it is essential to have a look at and apprehend SIP mobility mechanisms, its limitations, and vulnerabilities in a tactical environment.

IV. Conclusion

To make sure high exceptional reporting of implementation SIP generation implementation for the elderly, a complete of fifty three number one research from 2016 to 2021. To permit room for destiny improvement, the authors of the present day observe document several of limitations. For instance, throughout the hunt process, the authors restrained the seek articles to the ones from global journals and conferences. Also, even as reporting on current clever domestic tasks, theremay be extra or maybe newer tasks that now no longer to be had tous and can were ignored unintentionally. However, in destiny work, the authors wish to widen the hunt scope with an automated seek included, to permit us acquire signals on more moderen publications. We wish to adopt a brand new observe on SIP generation for soldier communication earlier than the cease of 2021 to preserve tune of the wide variety of SLR research with complete SLR pointers on SIP technology for soldier communication.

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