

An Exploration on Internet of Things Focused Security Attacks for Low Power Wireless Networks

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The integration of the Internet of things and wireless communications enables the community to think for innovative solution for real life applications. The adaptability of these solutions lie in the framework of security encompassed over the associated nodes and devices. There are numerous strategies and protocols that have been emerged in order to provide accurate and efficient solutions for these applications. The security of the deployed applications using internet of things and wireless networks depends on a number of factors including routing, coverage, accuracy, reliability, trust and reputation etc. Out of these factors, some influence the network more as compared to others depending on the deployed environment. This presentation highlights the significance of routing attacks towards the security of IoT based applications. Commonly used security attacks on routing protocols for low power and lossy networks (RPL) have been analysed in the Internet of Things. The simulation based study has been carried out to stimulate RPL attacks namely: hello-flood, decreased-rank and increased-version. For the given scenarios, these attacks can be analysed one by one or in a simultaneous manner. In addition, machine learning using artificial neural network (ANN)-based supervised methods can be opted for addressing the security attacks. As the performance measures, a number of parameters can be addressed. These parameters are accuracy, precision, recall, F1-score and Mathews correlation coefficient (MCC). Overall, there is a need to explore more in the direction of security attacks to protect the real time applications from unauthorized and unauthenticated access.

Biography

Dr. Vinod Kumar Verma is an Assistant Professor in the Department of Computer Science and Engineering at Sant Longowal Institute of Engineering and Technology, Longowal, Punjab, India. Dr Verma has published many research papers in the International Journals of IEEE, Springer, Elsevier, Taylor and Francis. Dr. Verma is also serving as Editorial Board Member / Reviewer for many International Journals like IEEE Sensor Journal, USA, IEEE Transactions on Neural Networks and Learning Systems, USA, ELSEVIER Computer Networks, Dr Verma has served many International conferences in different capacities at UK (2012), USA (2014), JAPAN (2015), ITALY (2016) ,AUSTRALIA (2017), FRANCE (2018).

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