

# Peer Work Review

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## I. INTRODUCTION

This report will give a critical evaluation about Model checking Indoor Positioning System with triangulation positioning technology from four aspects which are format, structure, selected topic regarding to PRISM and experimental process.

## II. QUALITY OF THE REPORT

The whole format of this paper is clear and coherent. This paper basically follows the IEEE regulations while there are still some drawbacks. There is a typo in the Related Work section which “DTOA“ should be “TDOA“ relating to “time difference of arrival“. In the model realization part, there should be some space between paragraph and functions of antenna modules to keep coherent. In the validating frameworks section, the font of these two formulas should be smaller. The font of reference part is a little bigger which does not follow IEEE regulations strictly.

For each section, this paper introduces from general to specific with clear logic. In the introduction part, report briefly introduces indoor positioning system and describes three different system topologies which are used to function IPS. In the related work part, it describes the components of WhereNet and working mechanism. For model checking part, report introduces two frameworks and difference between these two frameworks. Additionally, it briefly explains mechanism of triangulation positioning technology. In model realization part, report explains positioning antenna, positioning processor, servers and BLE modules. However, report doesn't mention information about main processor and dispatch radio. For performance evaluation part, report does experiment about impact of positioning antennas, impact of positioning processor and comparison of two frameworks. But report doesn't refer impact of main processor and dispatch radio, moreover, BLE module is not described in report which is important to framework. In conclusion part, report has comparison about two framework condition and has conclusion about condition of IPS reliability. Due to the complexity of two frameworks of IPS, some module analyses are not covered in this paper. It would be advisable to further discuss the impact of these modules to the whole IPS system.

## III. CONTRIBUTION

This paper selects Indoor Positioning System (IPS) with Triangulation Positioning Technology (TPT) as topic which is a good topic that could be applied in various circumstances related to Internet of things (IoT). IPS is suitable for PRISM model checking since it has clear architectures and contains different modules in its framework. Different kinds of modules could be analyzed respectively. Images of WhereNet, IPS frameworks and TPT are used which can greatly help reader understand these technical words.

## IV. WORKLOAD

As for the experiment regarding to exploration on impact, it is one of the most important part in a paper.

The experiment process is generally divided into three parts including Antennas, processors in two models and the frameworks test. During the Antennas test, there is a contradiction where the impact performance is probably reversal. From the findings, the reliability of a system with more Antennas should be higher than those with lower Antennas. However, in fig6, the system with 4 antennas performs well than that with 16 antennas. It's worth mentioning that this paper tests both in short and long period, which proves the results more scientifically.

In other two test, it suggests that Model 2 is more advanced than Model 1 in the figures because of its lower probability of down. However, in the last of the paragraph, it concludes that the first framework is much more reliable and robust than the second one, which should be modified later.

## V. CONCLUSION

In conclusion, this paper is normative and comprehensive. It has standard format, clear structure, congruent topic and detailed experimental process. However, there are still some drawbacks which should be focused on. These drawbacks need to be modified later.