

CAS 741: Problem Statement

Radio Signal Strength Calculator

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Table 1: Revision History

Date	Developer(s)	Change
Sept. 21, 2020	Xingzhi Liu	Added problem statement

1 The problem

This project aims to estimate radio signal strength in an indoor environment: given the location, power, and radio frequency of a radio transmitter, and given the floor plan of the building where the transmitter is installed, our goal is to determine the radio signal strength within the building.

2 Why is it important?

From the evaluation of Wi-Fi signal coverage to indoor localization, radio signal strength data is essential in various application scenarios of indoor wireless systems. However, collecting signal strength data in the real world is both expensive and time-consuming. This project will help us obtain signal strength without conducting on-field surveys, thus reducing the time and cost of data collection.

3 Context of the problem

Wireless system engineers are our software's potential users. The potential users are estimated to have basic knowledge of wireless communication and software development. The software will be developed in python 3 and run on Windows 10 system. The reason for choosing Windows 10 is its large user base among wireless system engineers.