Homework #1

1. Define your own metric for scalability and justify.

2. You are given a set S of sensors with Cost function C(S) and Sensor Reliability function R(S) defined on S. Consider an N x N grid with sensors to be deployed at grid points. Given a Reliability constraint for each grid point, construct an algorithm for minimum cost deployment of sensors that satisfies this reliability constraint. The reliability constraint for a grid point p can be calculated in terms of the intersection of reliabilities of sensors that cover that point. You can assume that the range of all sensors is identical. Solve the problem first by setting up quantitative constraint and coverage expressions. Then discuss a variety of possible algorithms, ranging from brute force to optimal (if it exists).