An Improved Indoor Positioning System
Based on WLAN

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- Introduction
- Procedure
- Study Area
- Methods
- Manipulation
- Database
- Results
Introduction

Outline

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Procedure

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**Procedure**

1. **Start**
   - Designing the best distribution of sample points and hotspots

2. **Evaluation**
   - Evaluating the developed indoor positioning system and results
   - Yes
   - No

3. **Observation**
   - Observation of RSS values and creating the database

4. **Programming**
   - Programming and developing the software

5. **Assessment**
   - Assessing the database using the developed software

6. **End**
Third floor of Geodesy and Geomatics faculty of K. N. Toosi University of Technology
Methods

Nearest Neighbor in Signal Space (NNSS)
Probabilistic Method
Artificial Neural Network

Recognizing the pattern

User 1
Fingerprint

RSS from A
RSS from B
RSS from C
RSS from D
Manipulation

\[ d_j = \sqrt{\sum_{i=1}^{m} (S_i - s_{ij})^2}, \quad j = 1, 2, \ldots, n \]

Matching the pattern
### LOCATING YOUR RECEIVED RSS:

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<tr>
<th>id</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
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**your location is:**
X: 
Y: 

**Your direction:**

**Reliability:**
(Zero is desired)

### Adding a new Pattern Point:

<table>
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**Database**

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Thanks for your attention!