

# Localisation: Where Am I?

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# **1 Introduction**

## **2 Background**

Localisation problem definition. Approaches to localisation

### **2.1 Kalman Filters**

Describe how Kalman Filters work, and why they are used for localisation. Discuss the drawbacks of Kalman Filters and how EKF can help resolve some of these issues.

### **2.2 Particle Filters**

Describe what a particle filter is and how it works. Why are particle filters useful for localisation?

### **2.3 Comparison & Model Selection**

Compare the two approaches and determine which approach was implemented to provide localisation for the two robot models.

## **3 Simulations**

Describe the performance of the robots. Show the two robot model designs, highlighting the placement of sensors, and the sensors that were employed for the robot.

### **3.1 Achievements**

### **3.2 Benchmark Model**

#### **3.2.1 Model Design**

the size of the robot, the layout of the sensors - use a chart or a table

#### **3.2.2 Packages Used**

#### **3.2.3 Parameters**

### **3.3 Personal Model**

## **4 Results**

### **4.1 Localisation**

### **4.2 Technical Comparison**

## **5 Discussion**

### **5.1 Topics**

## **6 Conclusion / Future Work**

### **6.1 Modifications for Improvement**

### **6.2 Hardware Deployment**