

# Robot Interaction Using Cricket, an Indoor Positioning System

**Hosam Haggag • Golbarg Mehraei**

Advisor: **P.S. Krishnaprasad**

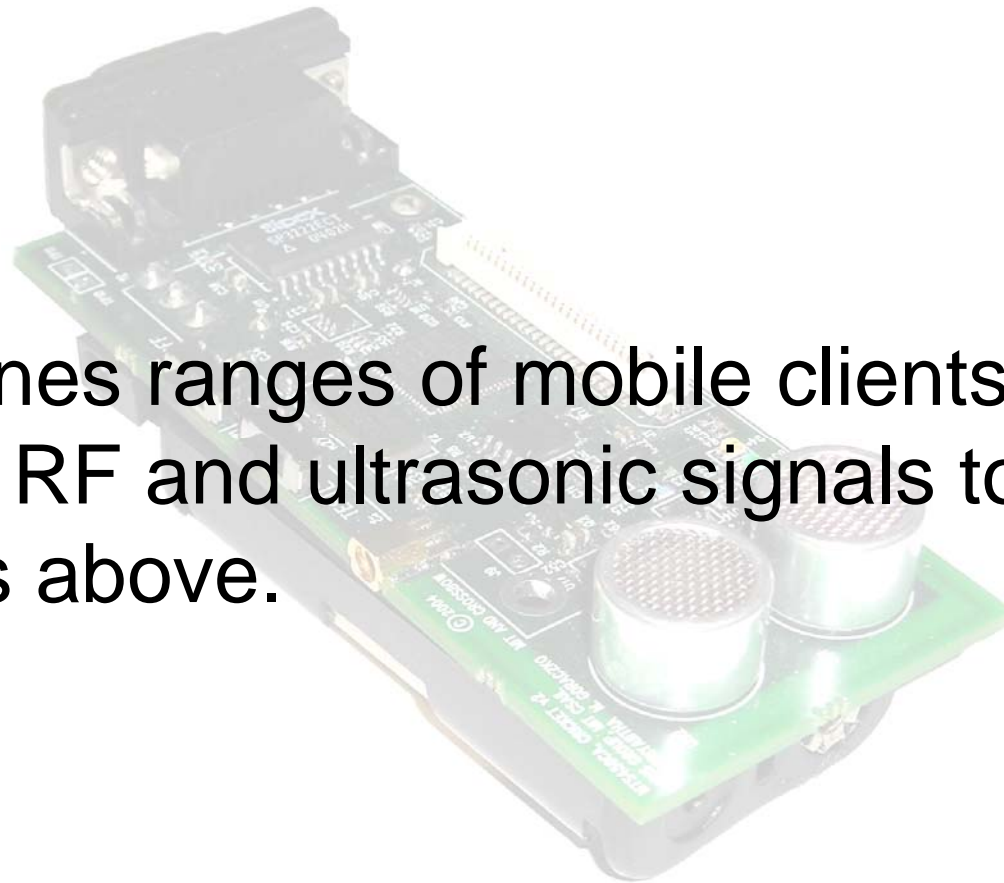
Collaborator: **Joshua Lioi**

## ➤ What is Cricket?

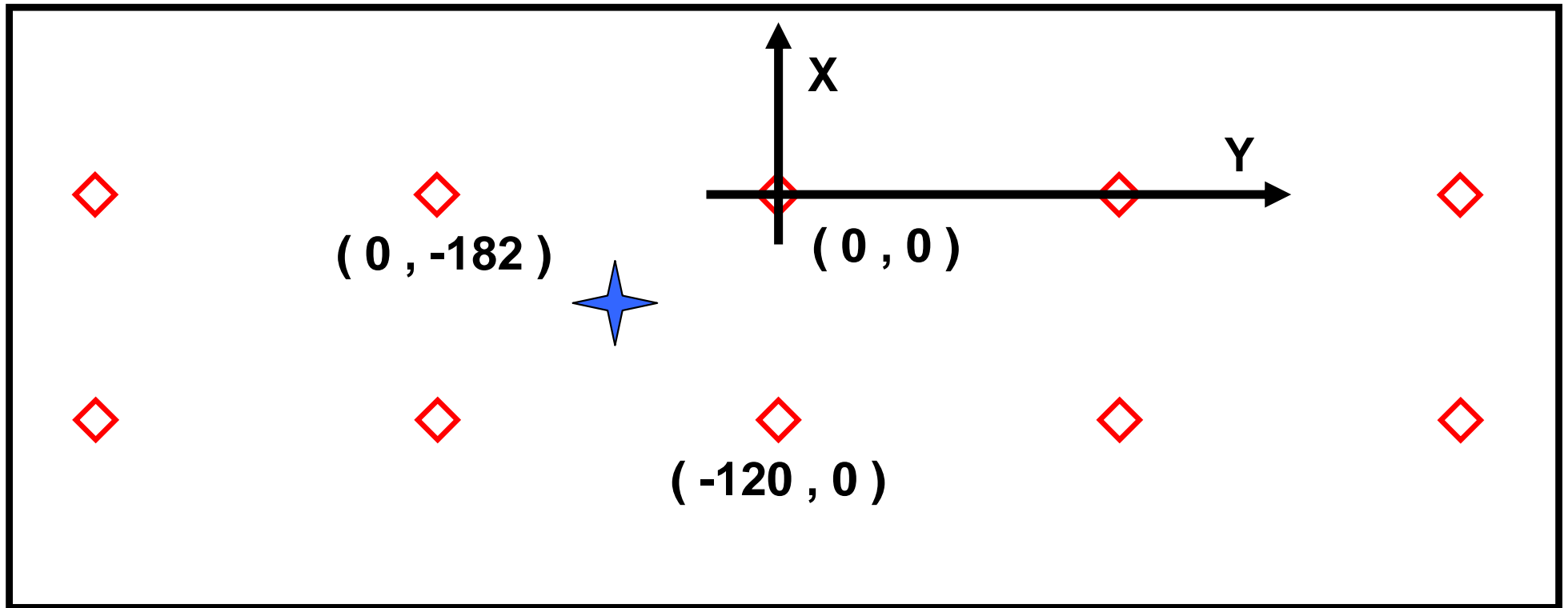


## ➤ What is Cricket?

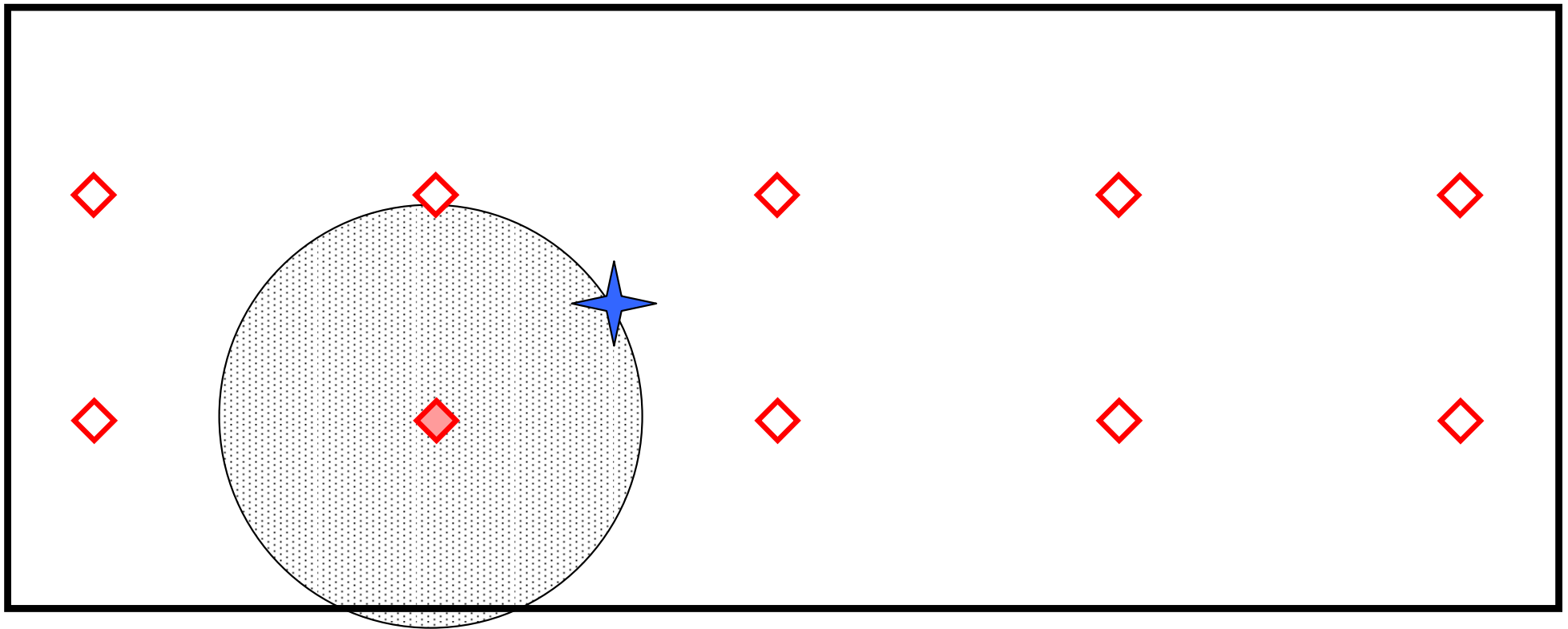
- Determines ranges of mobile clients by sending RF and ultrasonic signals to fixed beacons above.



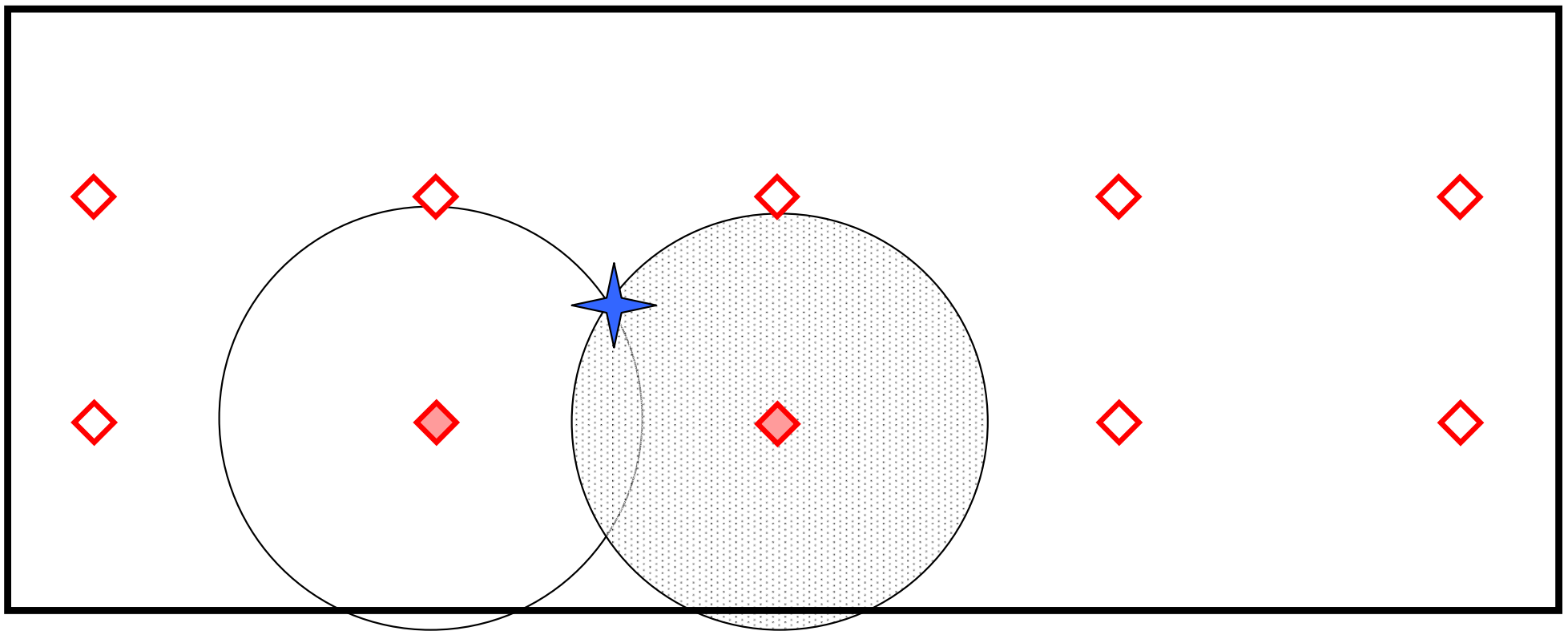
- Uses range information to triangulate position of client.



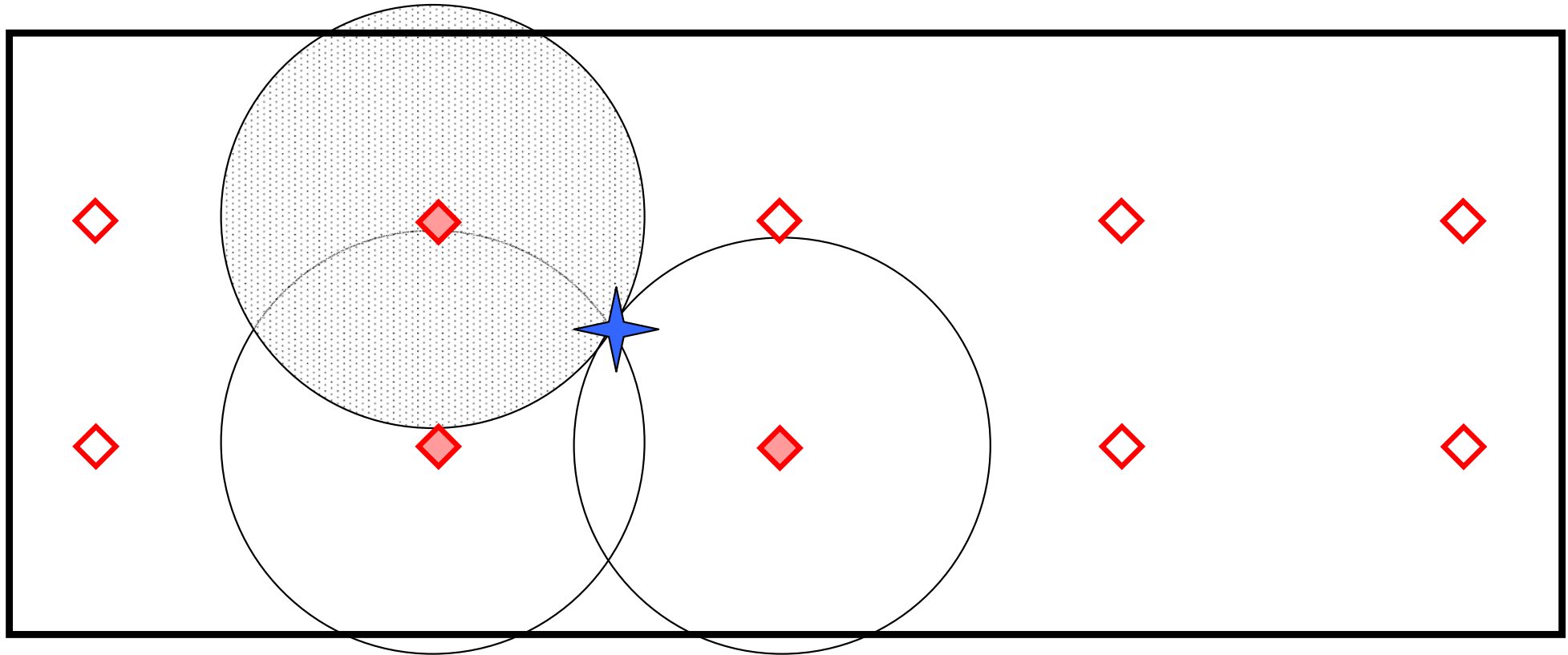
- Uses range information to triangulate position of client.



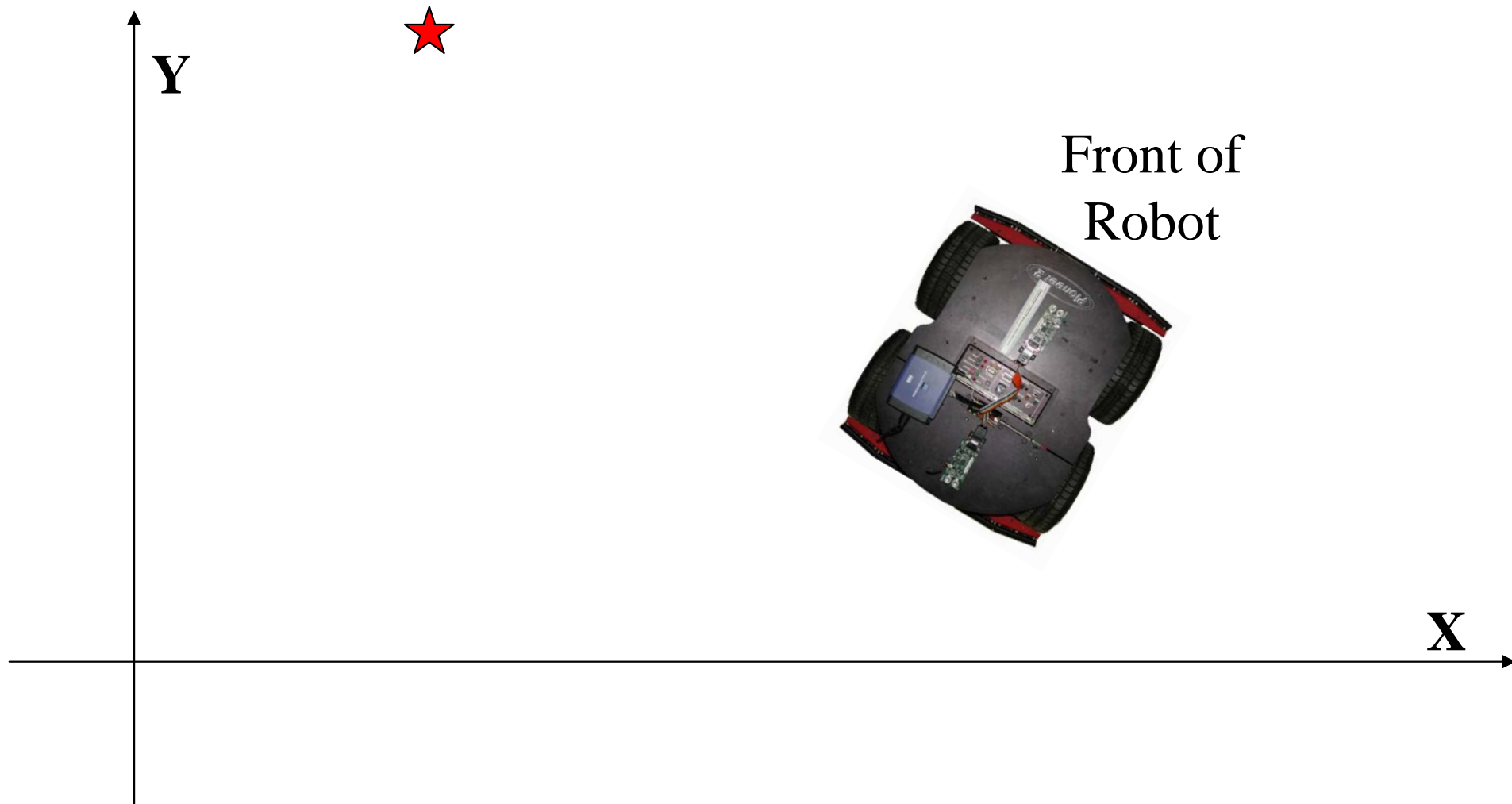
- Uses range information to triangulate position of client.



- Uses range information to triangulate position of client.

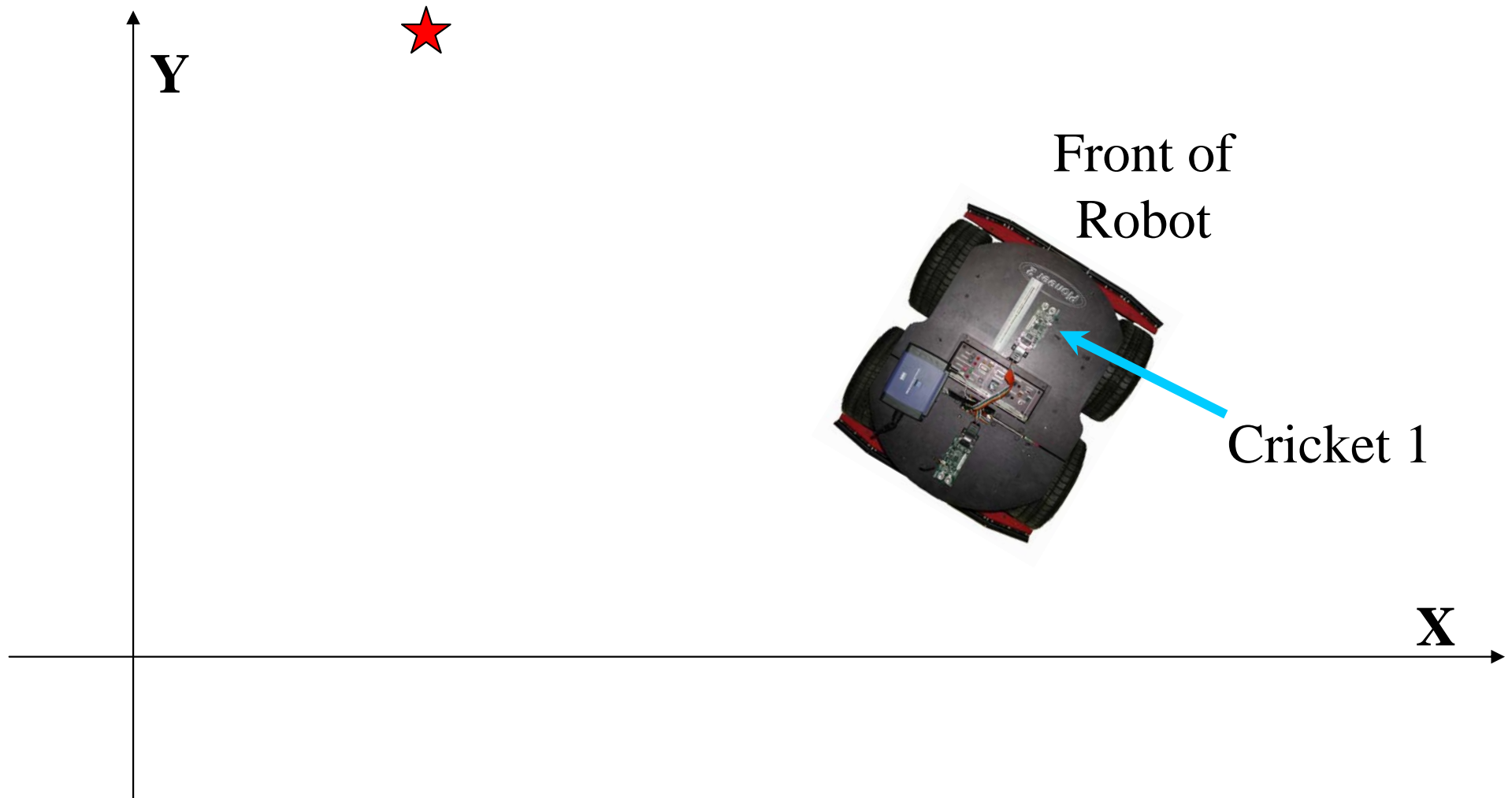


## ➤ Tracking a Fixed Destination

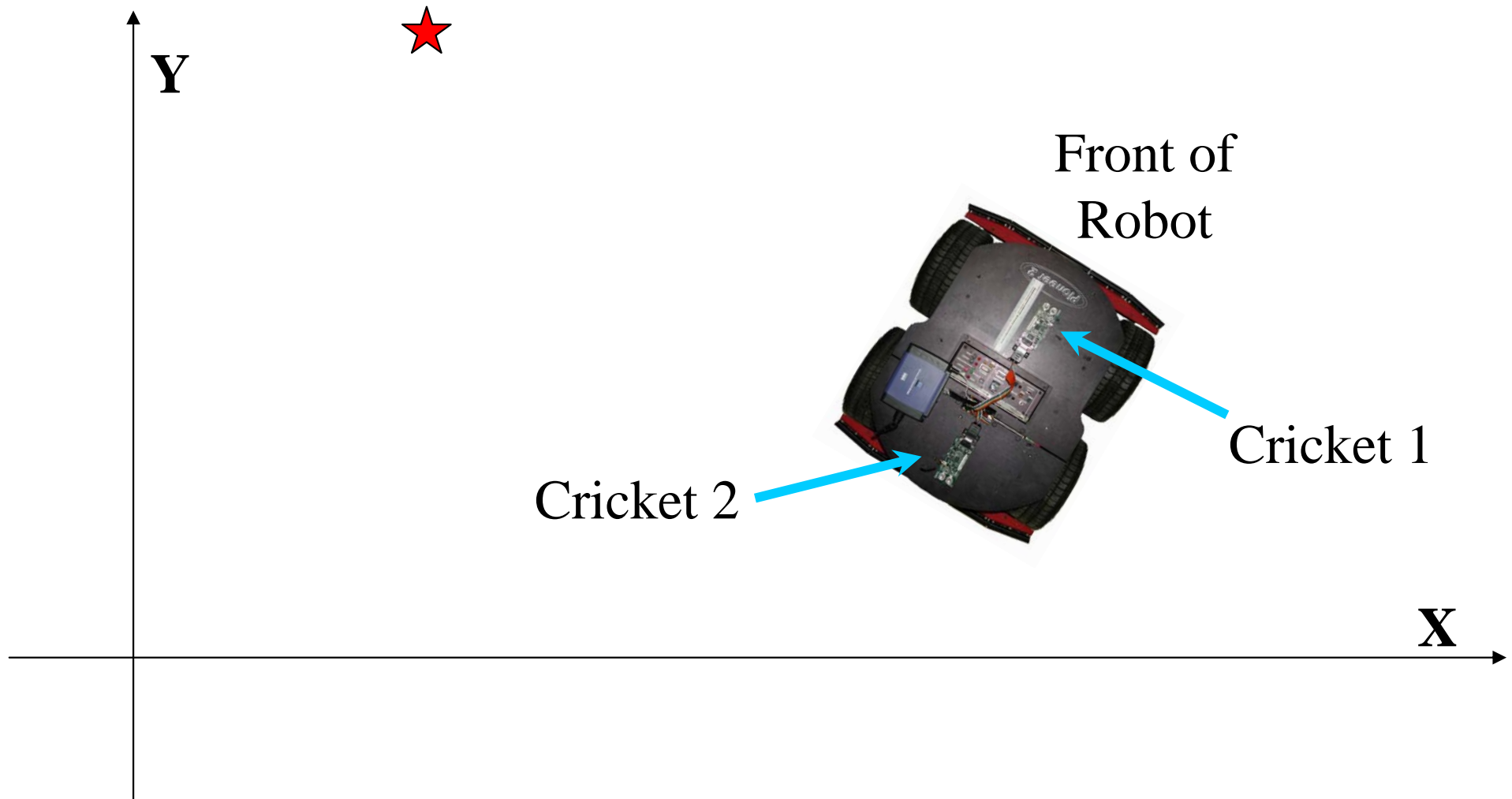




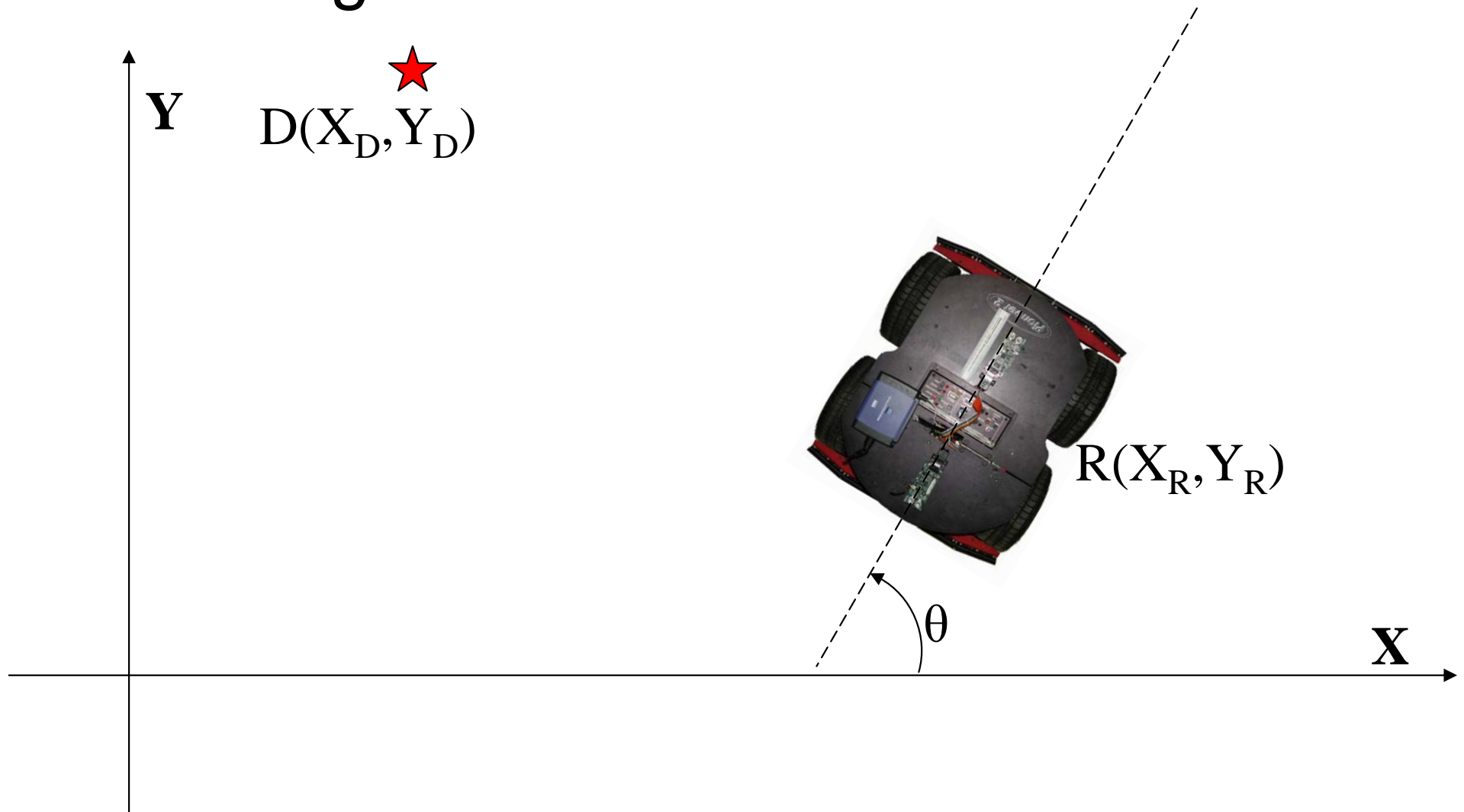
## ➤ Tracking a Fixed Destination



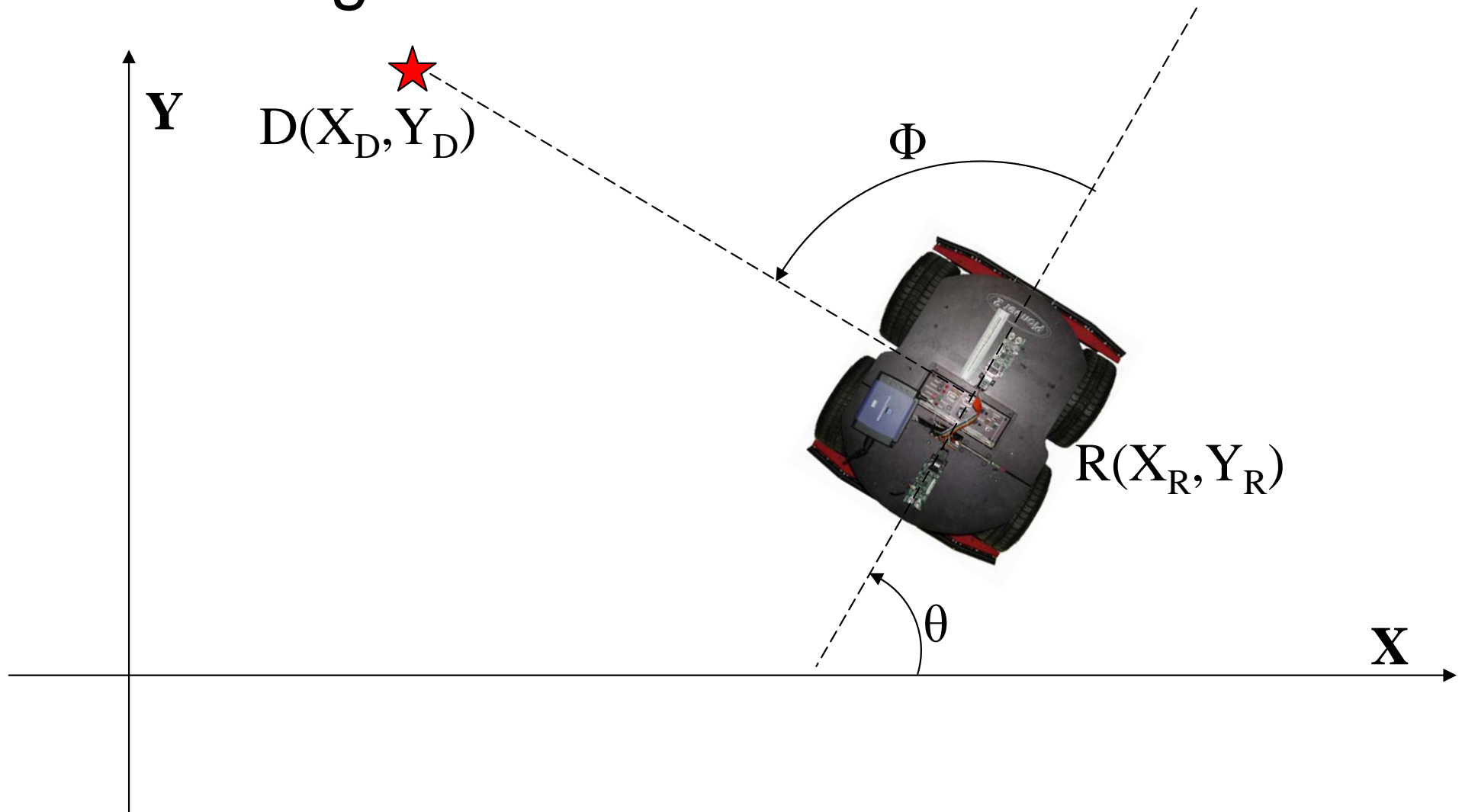
## ➤ Tracking a Fixed Destination

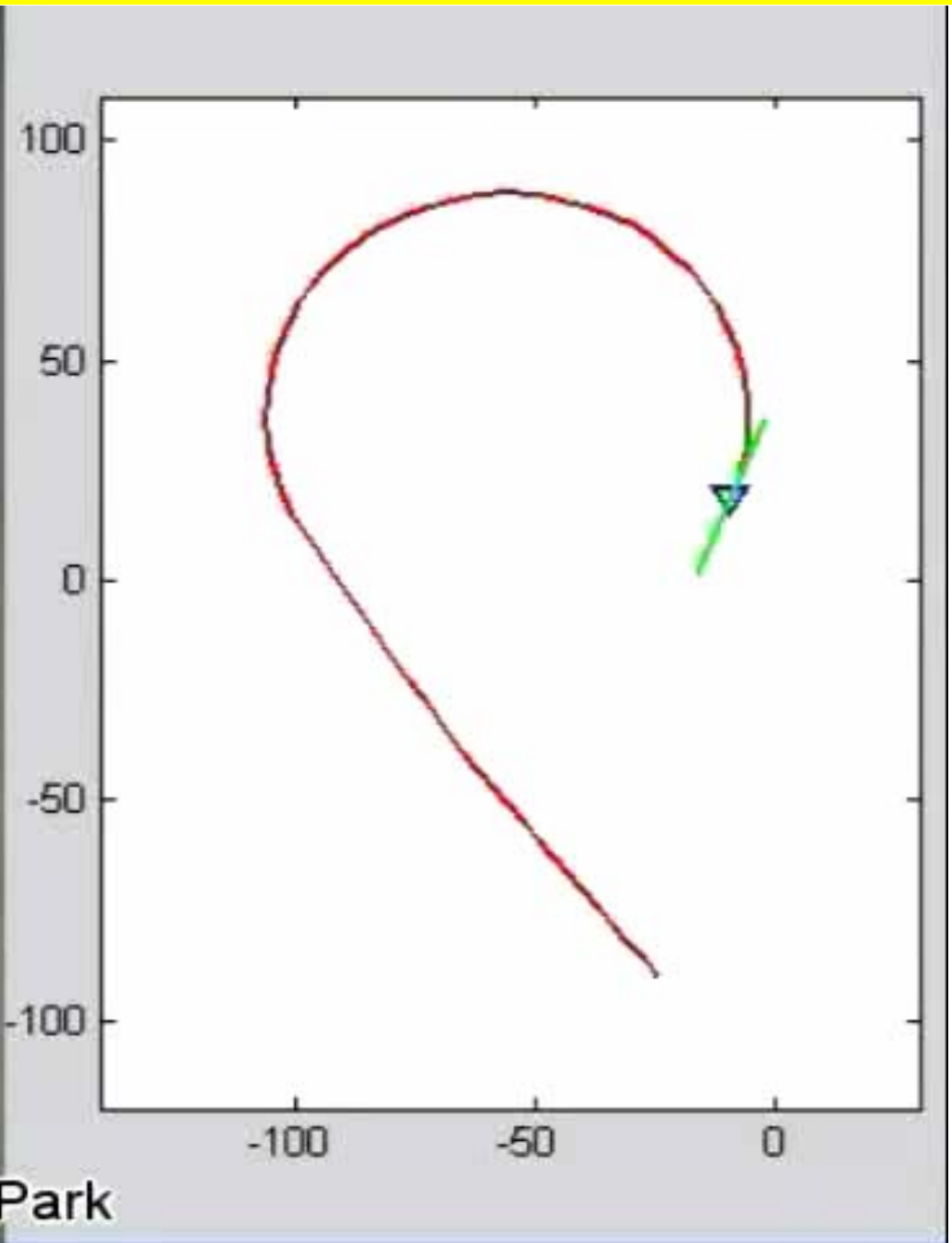


# ➤ Tracking a Fixed Destination



## ➤ Tracking a Fixed Destination





- Tracking Another Robot
  - Robot is a moving destination.
  - How to find the coordinates of another robot?

## ➤ Tracking Another Robot

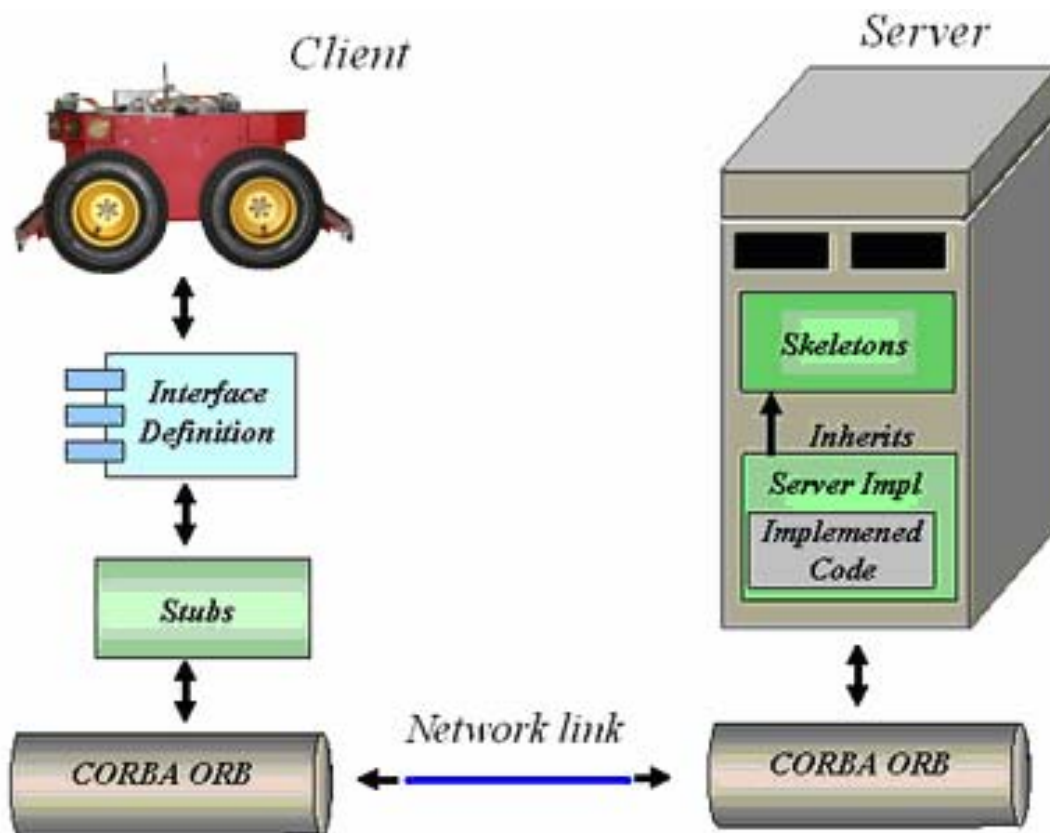
➤ Robot is a moving destination.

➤ How to find the coordinates of another robot?

➤ **CORBA**

# ➤ Tracking Another Robot

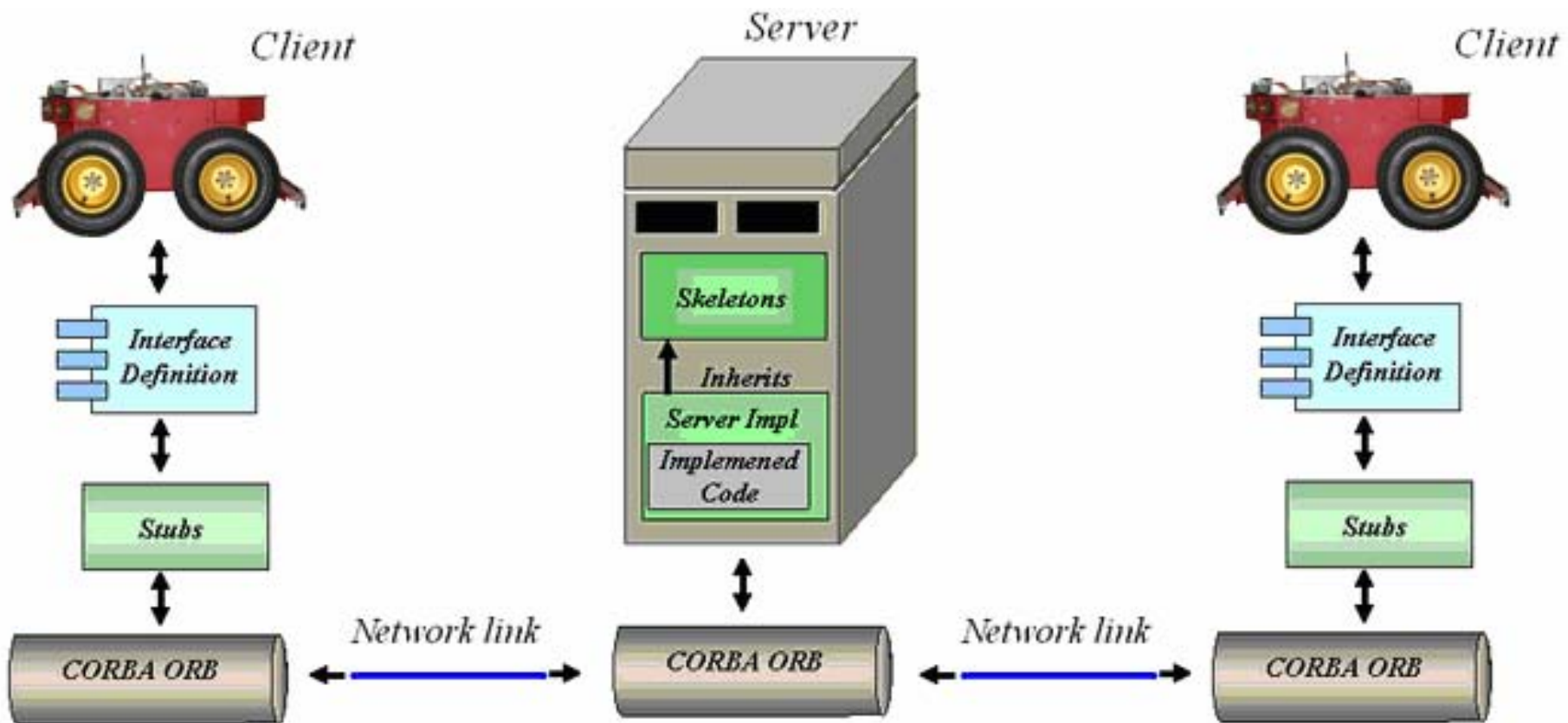
## ➤ CORBA





## ➤ Tracking Another Robot

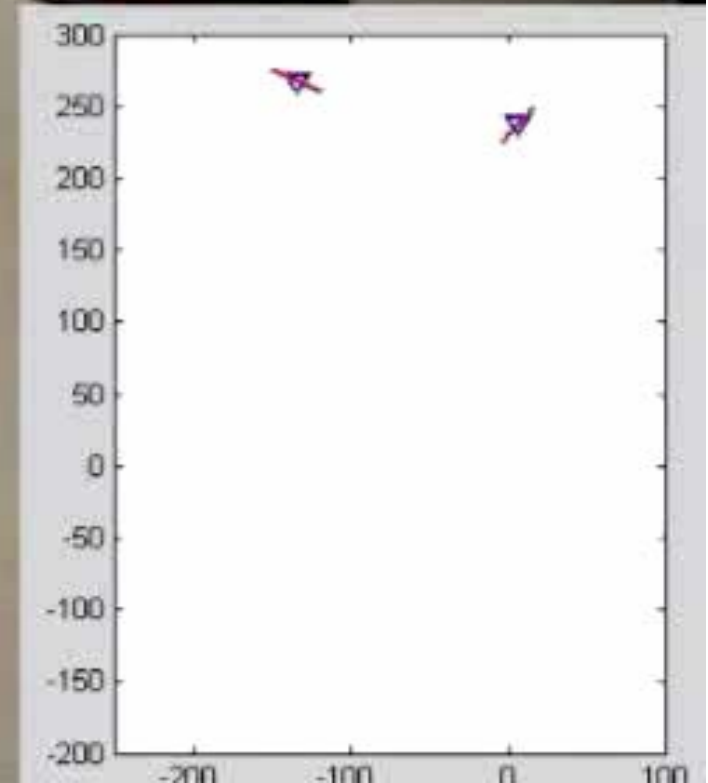
### ➤ CORBA





**Classical Pursuit:  
Robot Genghis chases  
Robot Lola, with Lola  
under manual control.**

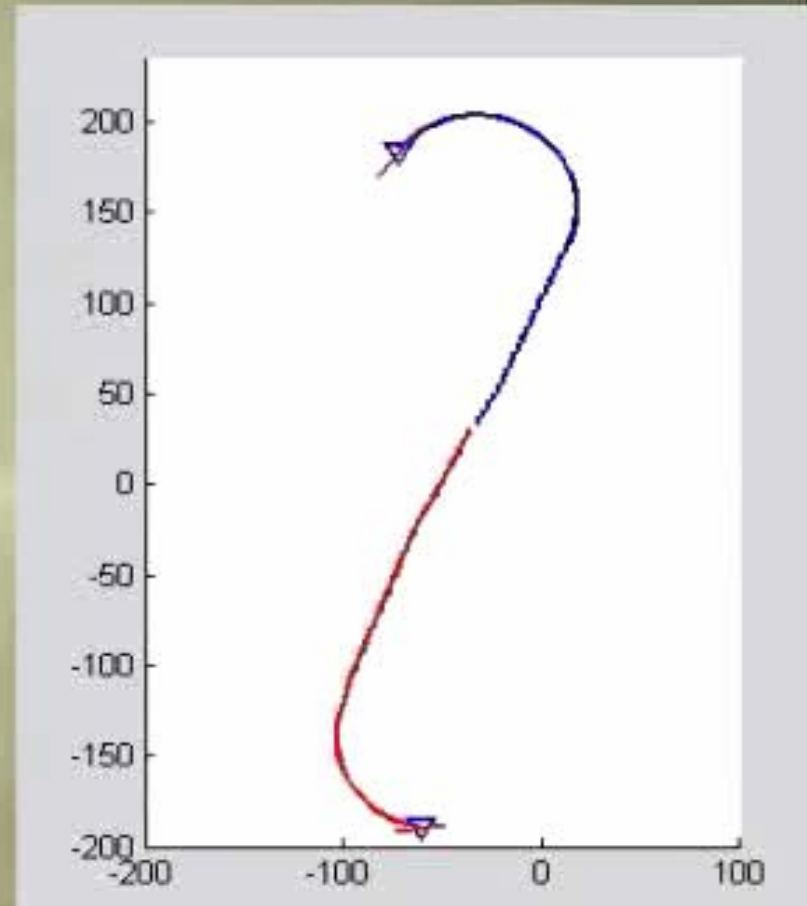
Intelligent Servosystems Lab  
University of Maryland, College Park





**Rendezvous:  
Robots Lola and Genghis  
under mutual pursuit law.**

Intelligent Servosystems Lab  
University of Maryland, College Park



- Control Law Implementation
  - MDLe – Motion Description Language, extended version.
  - Independent of robotic system platform.



# Robot Interaction Using Cricket, an Indoor Positioning System



## Project Website:

[www.isr.umd.edu/Labs/ISL/Summer06project/](http://www.isr.umd.edu/Labs/ISL/Summer06project/)