Common Library Classes

Vector2D

- x : double
- y : double

Used for position-velocity etc vectoral processes

LocationRetriever (thread)

- position : Vector2D
- interval : int
- ip & port

Retrieves position data from multicast address per interval.

SensorData

- id : int
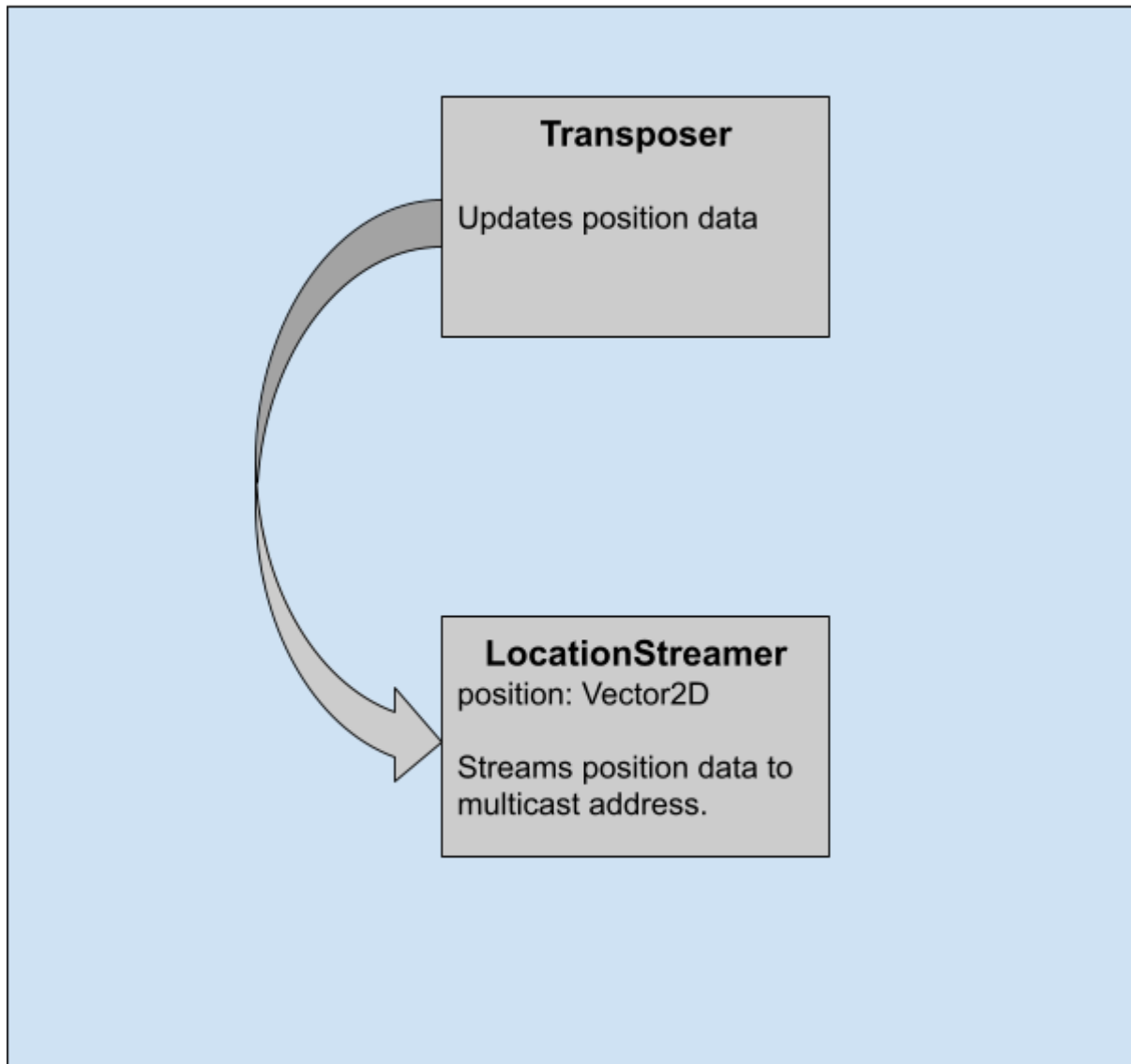- ts : long
- position : Vector2D
- angle : double

Used to keep data like sensor position, angle with target and timestamp of data
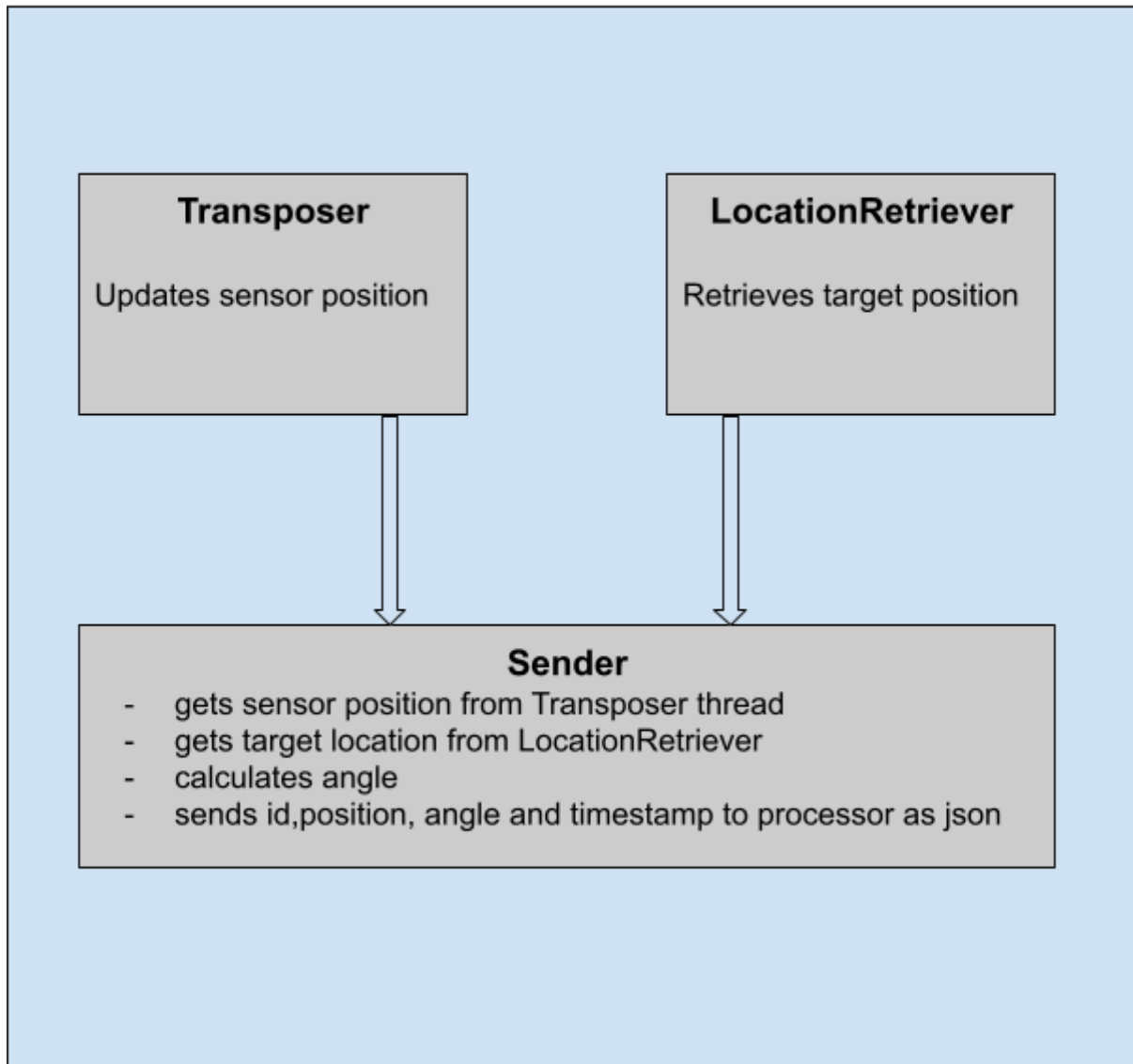
Transposer (thread)

- position : Vector2D
- patrolPoints: Array<Vector2D>
- speed : double
- period : int

Used to give ability of move to owner object. Patrols between given points and updates the position which can be obtained from owner class thread-safe

Target

Transposer

Updates position data

LocationStreamer
position: Vector2D

Streams position data to
multicast address.

Sensor

Transposer

Updates sensor position

LocationRetriever

Retrieves target position

Sender
- gets sensor position from Transposer thread
- gets target location from LocationRetriever
- calculates angle
- sends id,position, angle and timestamp to processor as json

Processor

SensorListener (1) Gets angle and sensor position	**SensorListener (2)** Gets angle and sensor position

PositionCalculater
- calculates target position with latest sensor data

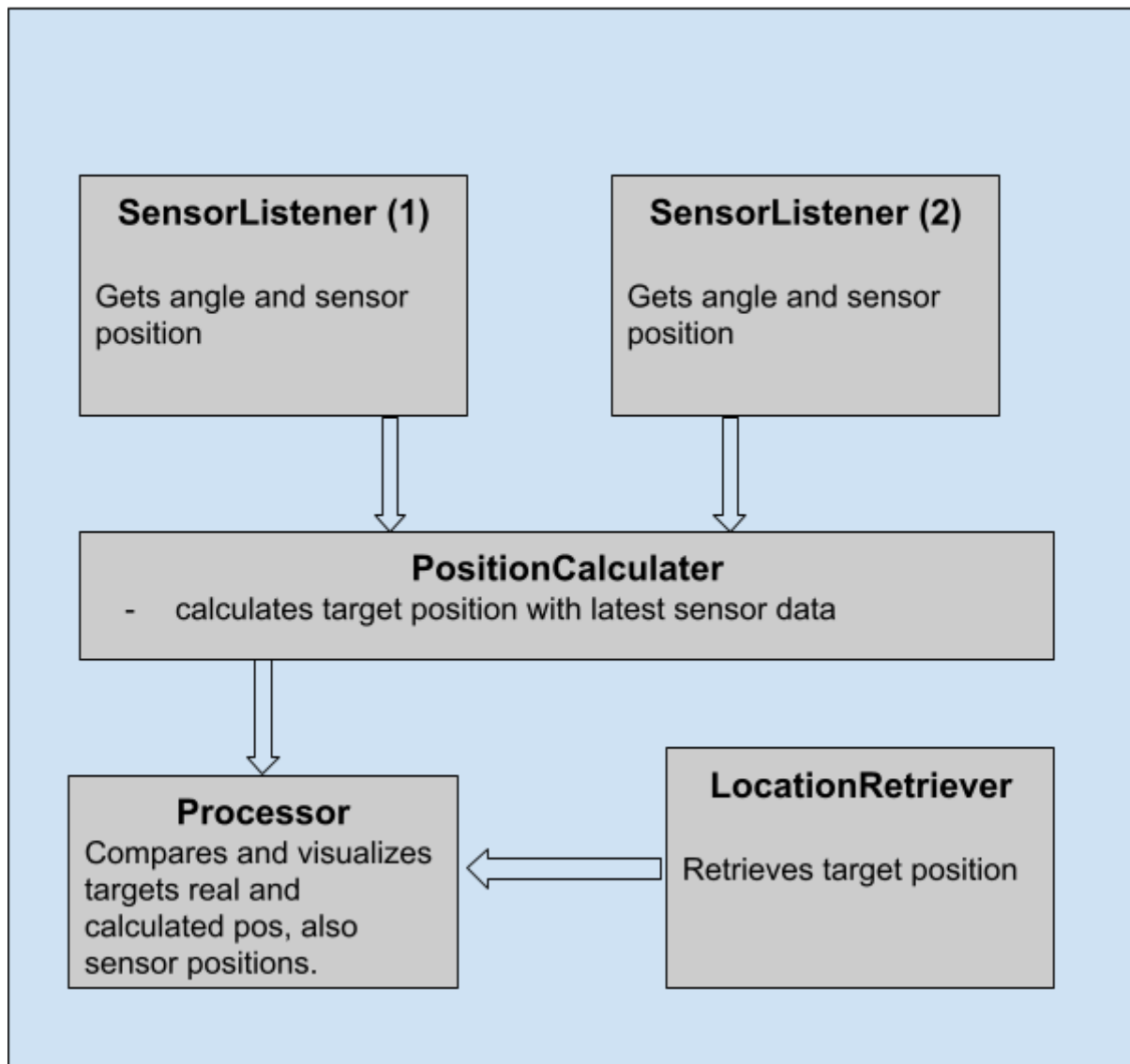| **Processor** Compares and visualizes targets real and calculated pos, also sensor positions.	**LocationRetriever** Retrieves target position

Usage

- **Start Target**
  java -jar target.jar config.txt
- **Start Sensors**
  java -jar sensor.jar config.txt 1
  java -jar sensor.jar config.txt 2
- **Start Processor**
  java -jar processor.jar config.txt

Configuration File

Multicast port & ip : Multicast address for streaming targets position

Sensor1-2 port & ip : Sensor address for connection with processor

target x & y : Targets initial position

sensor 1-2 x & y : Initial positions of sensors

interval: Sleep duration for next calculation, for example calculating next position.

sensor/target speed: speed of transposed object

error_margin: +/- value (in degrees) error added to calculated angle.