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Ministry of Defence

Multiple Signal Tracking using a Simulated Passive Sonar Array in Real-time or Less

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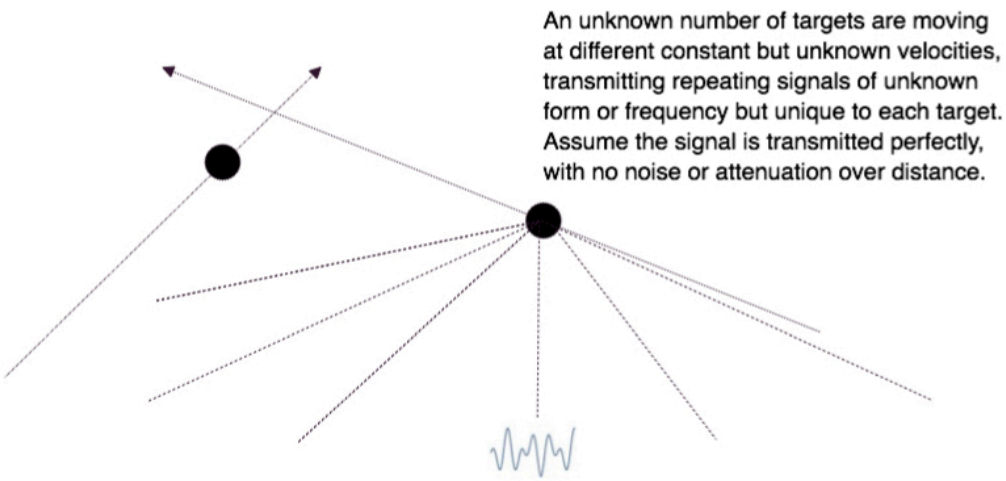
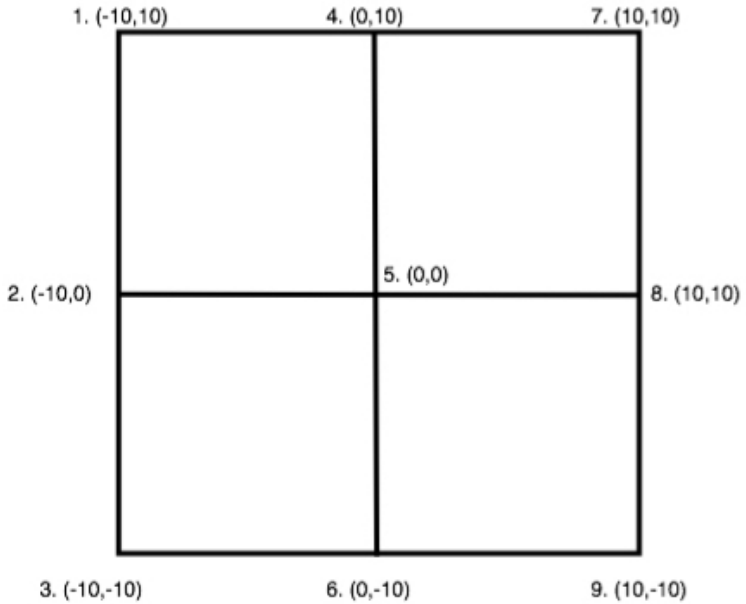
The Scenario…..



What you get….

- Two challenges as two data sets
- Each set is a CSV file of simulated timestamped hydrophone samples
- Hydrophones ordered and spaced at 10m intervals as in the diagram



The challenge….

- Establish the number of targets
- Track their bearing over time
- With a stretching goal to extract the transmitted signals

But ……

- Establish the bearing at time t using only data sampled before t, and
- … you have a minutes worth of data and only a minute of processing time to process the data

Simples!

Scoring

- In increasing order of difficulty establish
  - the number of signals
  - the signal transmitted by each target
  - bearings to each target at a subset of the timestamps in the given data sets with larger sets scoring higher

  The bearings can be delivered as an Excel spreadsheet, with the signals either as time series or in a mathematical form (LaTeX preferred). Details of the algorithm should be provided together with proof of execution times, with accurate sub minute times scoring higher.

And finally …..

- Datasets will be available from the UDRC website
- Results to be e-mailed to nwalton@dstl.gov.uk
- Closing date July 17th 2020
- Scores for each team providing a solution will be placed on the UDRC web site

Any Questions?

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