



# CREW

Cognitive Radio Experimentation World



## Clear Channel Assessment agent in a CSMA MAC using Iris

- Final result of one out of three experiments of 'Open Call 1' -



### Motivation

- Conventional CSMA MAC has strict timing requirement
- Low cost SDRs experience high communication delays

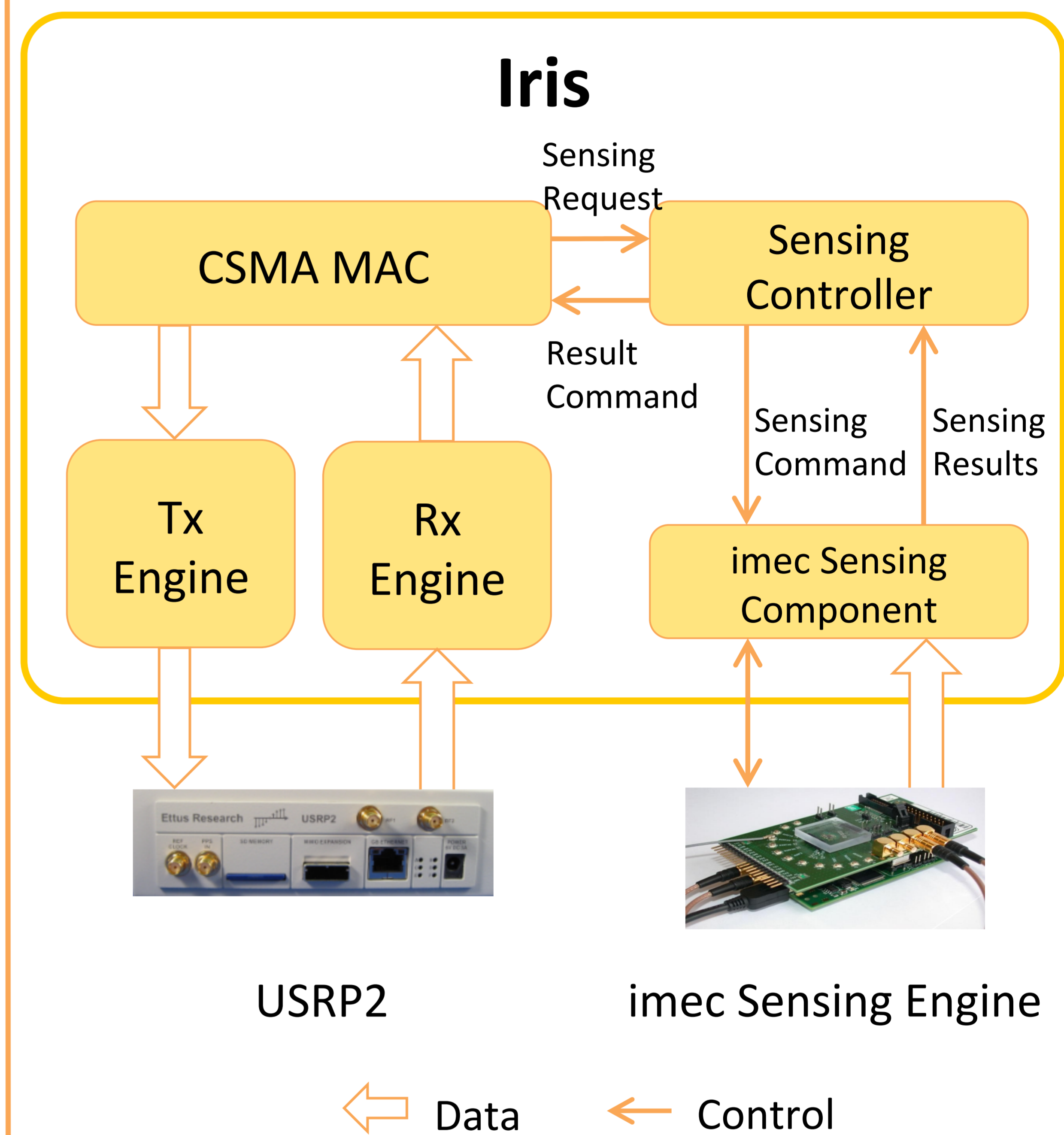
### Goal

- Reducing the sensing latency by using a dedicated sensing device
- Optimizing the timing parameters of the CSMA based MAC protocol

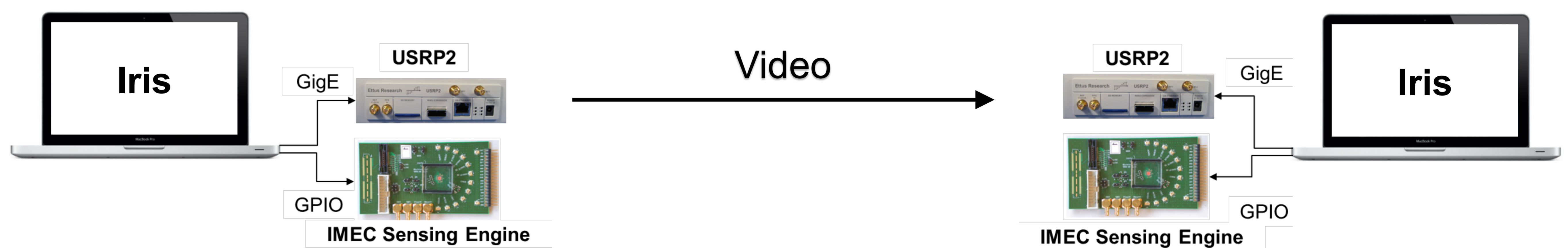
### Solution

- Combination of two cognitive components from the CREW project:
  - Iris reconfigurable SDR
  - imec Sensing Engine
- Using imec Sensing Engine as a Clear Channel Assessment (CCA) agent
- Two coupling modes between Iris and imec Sensing Engine:
  - Software based coupling
  - Hardware based coupling

### Logical components of the CSMA MAC software radio



- Video transmission between two nodes using the hardware coupling



### Results

- More than 50% reduction in channel access delay
- 13% reduction in packet error rate



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Future Internet Research and Experimentation – FIRE

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