

# A Framework to support Monitoring Actions on Embedded Systems

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# Introduction

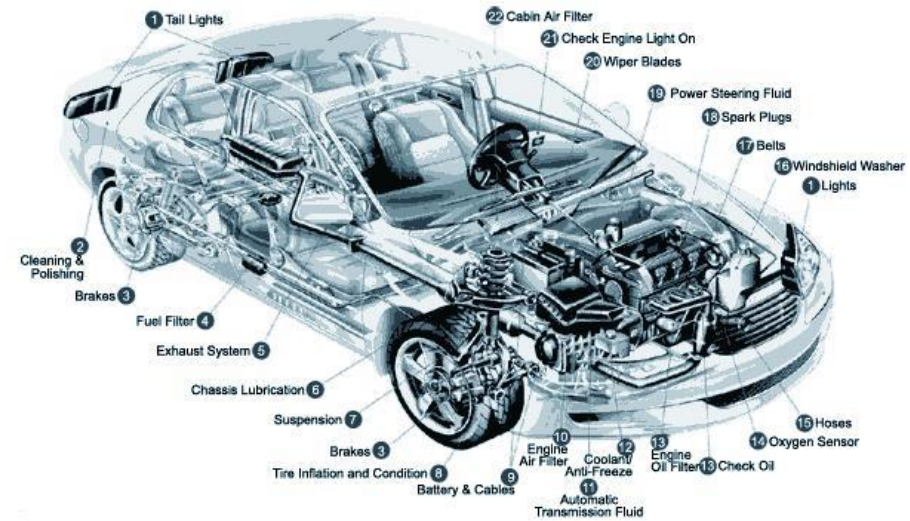
A typical Cyber-Physical System (CPS):

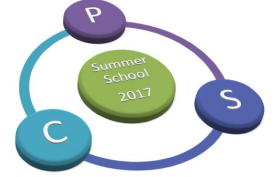
- Hybrid
- Heterogeneous
- Distributed
- Large-scale
- Dynamic
- Adaptive
- Human-in-the-loop

An EDA methodology for CPS should be:

- Cross-Domain
- Component-Based
- Learning- Based
- Time-Aware
- Trust-Aware
- Human-Centric

**A  
monitoring  
action can  
be required**





# Goals of monitoring actions

Focusing on System-On-Chip part of the CPS, a monitoring action can support:

- HW/SW partitioning for the algorithms implementation
  - Provide a profile of the behaviour of the application on different components (HW or SW).
- Runtime system management and adaptation
  - Identify bottlenecks, drive optimization, provide data to higher levels, e.g. models.
- Runtime Validation
  - Check system correctness during lifetime.
- Runtime Verification
  - Check properties of the system during lifetime.

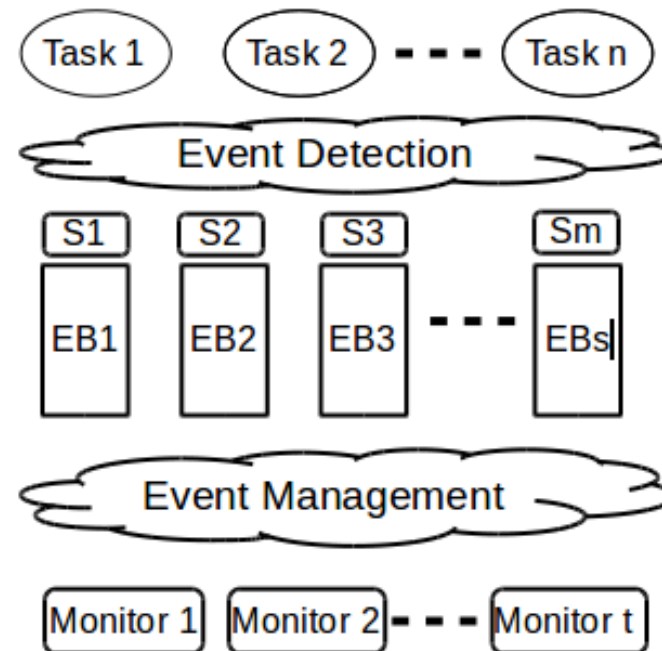
## Proposed research:

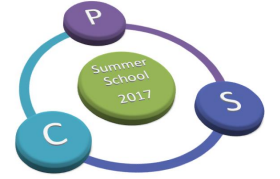
- **Development of a framework to support the identification of a proper monitoring solution**



# Proposed Architecture

- General reference architecture that can be adapted to different applications





# Ongoing collaborations

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□ MegaMart2: MegaModeling at Runtime

□ Simon Fraser University ABACUS

□ F-OMP



□ Hepsycode