
DESNA – Development Environment for Sensor Network Applications

Summary	<p>A complete development environment that facilitates the integration of sensor data and RFID with planning and optimization algorithms. This environment can be used to drive solutions for challenging operational and strategic problems in many vertical industries. The environment includes:</p> <ul style="list-style-type: none">• A domain modelling tool, used to profile the environment and sensor platform• An artificial intelligence modelling tool, used to deploy customised planning and optimisation algorithms• A business process modelling tool, used to express the business logic
Key attributes	<p>DESNA can be viewed as a middleware focussing on distributed sensor-based systems, extending from the MAC/routing layer to high-level programming. Key attributes are:</p> <ul style="list-style-type: none">• Deployment of wireless sensor network applications over large collections of collaborating sensor nodes that deliver uncertain information• Uses the industry standard Business Process Execution Language (BPEL) via a process of domain modelling, algorithm selection & instantiation and business modelling• Provides a familiar development paradigm and facilitates integration with web service applications• Provides intelligent decision support• Combines business process modelling, applied business intelligence and the use of real-time sensor data
Potential opportunities	<p>DESNA provides a high-level application creation environment that allows system users (who are analysts rather than sensor network programmers) to develop tailored applications based on an industry-standard workflow modelling approach. DESNA comprises a coherent set of sensor network application development tools and supporting services</p>
Possible application areas	<p>DESNA is applicable to large-scale systems, ranging from wide-area transport systems to environmental systems with many nodes, and is suitable for time-based activities such as vehicle routing. Possible application areas include:</p> <ul style="list-style-type: none">• Supply chain applications (preferably involving high value items)• Intelligent transportation systems• Autonomous management of systems, e.g. energy management

CONTACT

Prof Vinny Cahill
Trinity College Dublin

vinny.cahill@cs.tcd.ie
tel: +353 1 896 1795