



Components and Aspects for Embedded Middleware

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Problem

Need a resource-efficient, configurable middleware product line targeted for rapid embedded systems development.

Approach

Use components (Jiazzi) & aspects (AspectJ) to modularize features within the product line architecture. Extend tools to address domain concerns including memory and real-time behaviors. Use RT Zen middleware to guide the design of a new, integrated components & aspects language.

RT Zen – CORBA 2.3-compliant open-source middleware

- Characterize and classify existing RT Zen code as components and aspects
- Refactor RT Zen with Jiazzi & AspectJ
- Integrate new component and aspect model with RT Java support into RT Zen

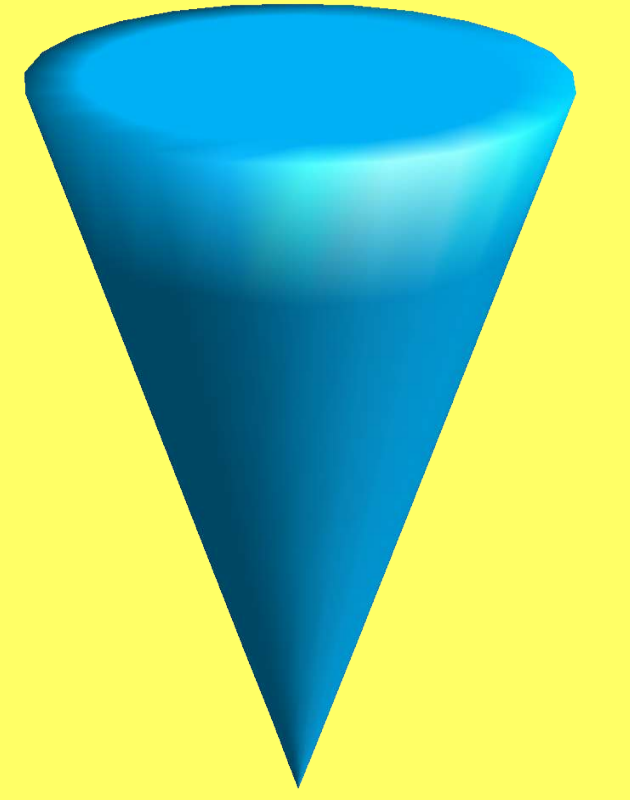
RT Java

- “Componentize” or “aspectize” RTSJ idioms within RT Zen
- Support RTSJ concerns in components & aspects language

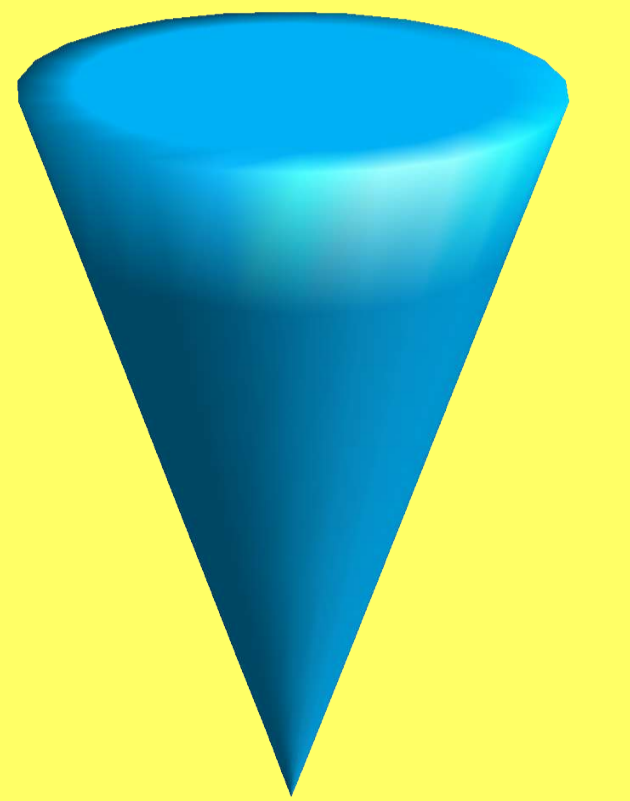
Jiazzi – Java extension providing component definition and linking

- Design and implement model for combining components and aspects
- Support aspects that modify component assemblies
- Provide support for RT Java in model and integrate into Jiazzi
- Create multidimensional component model for Jiazzi

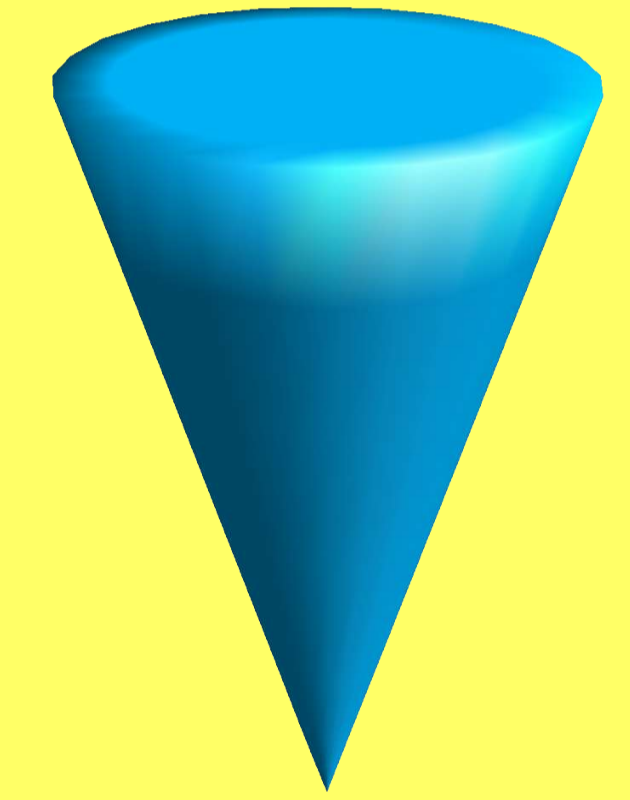
AspectJ



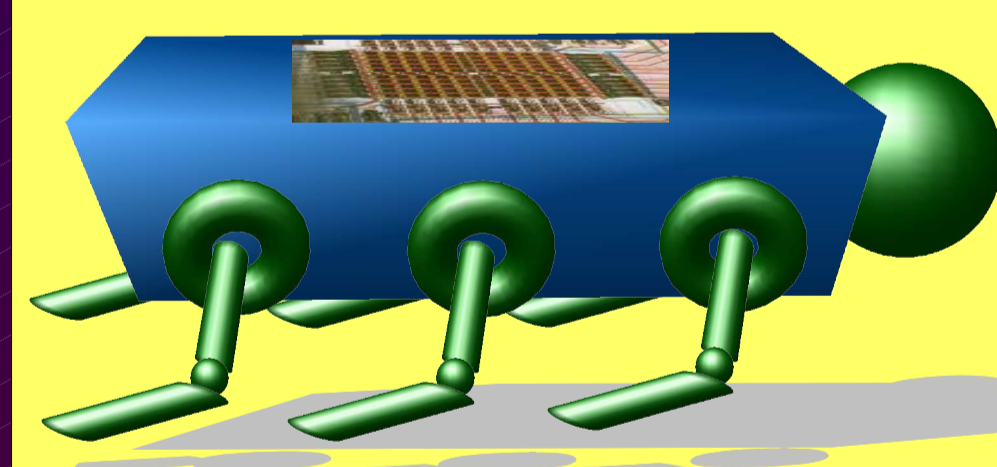
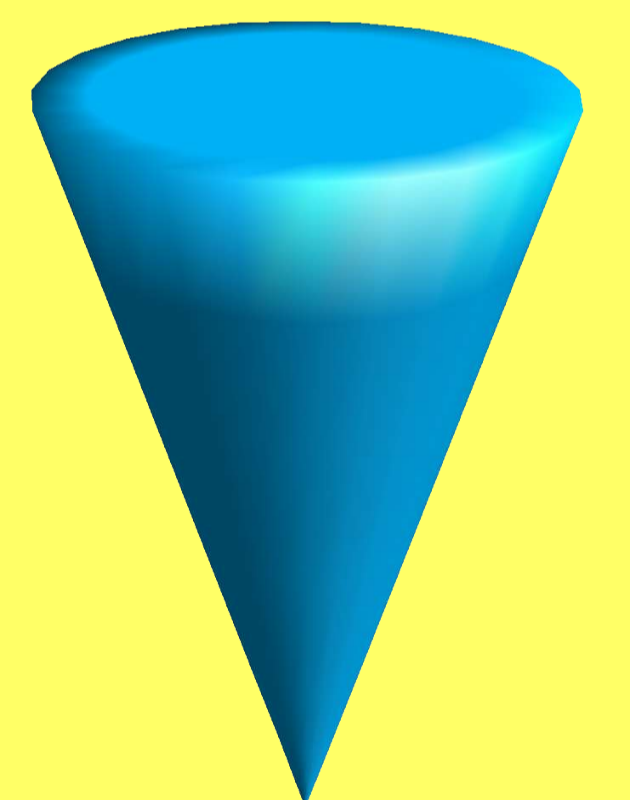
Jiazzi



RT Zen



RT Java



Embedded Devices