Software Regression Testing
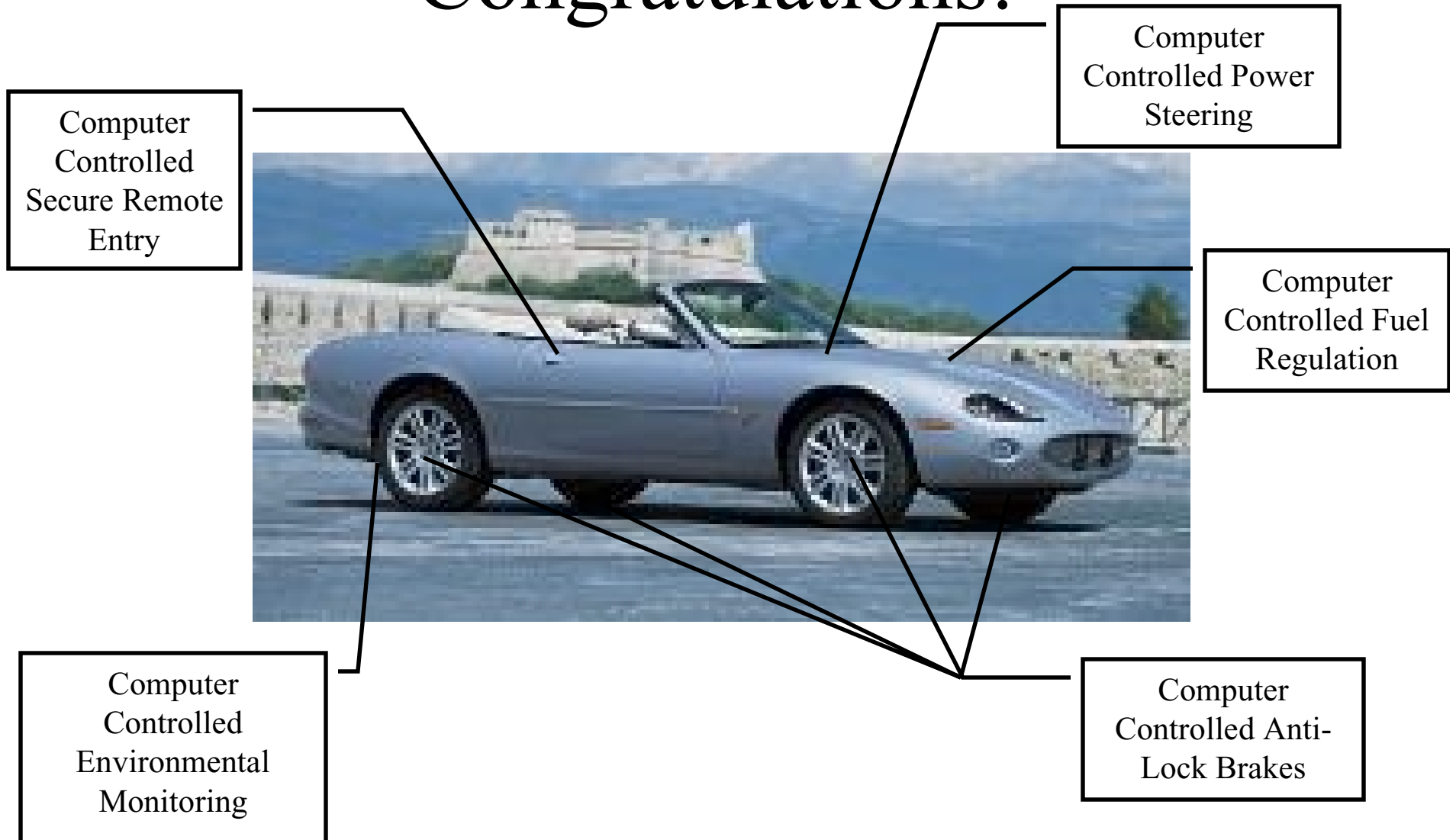
LT Alex Hoover

COMOPTEVFOR

Monday, January 13, 2003

Congratulations!

Computer Controlled Power Steering

Computer Controlled Secure Remote Entry

Computer Controlled Fuel Regulation

Computer Controlled Environmental Monitoring

Computer Controlled Anti-Lock Brakes

Testing …

Computer Controlled Secure Remote Entry

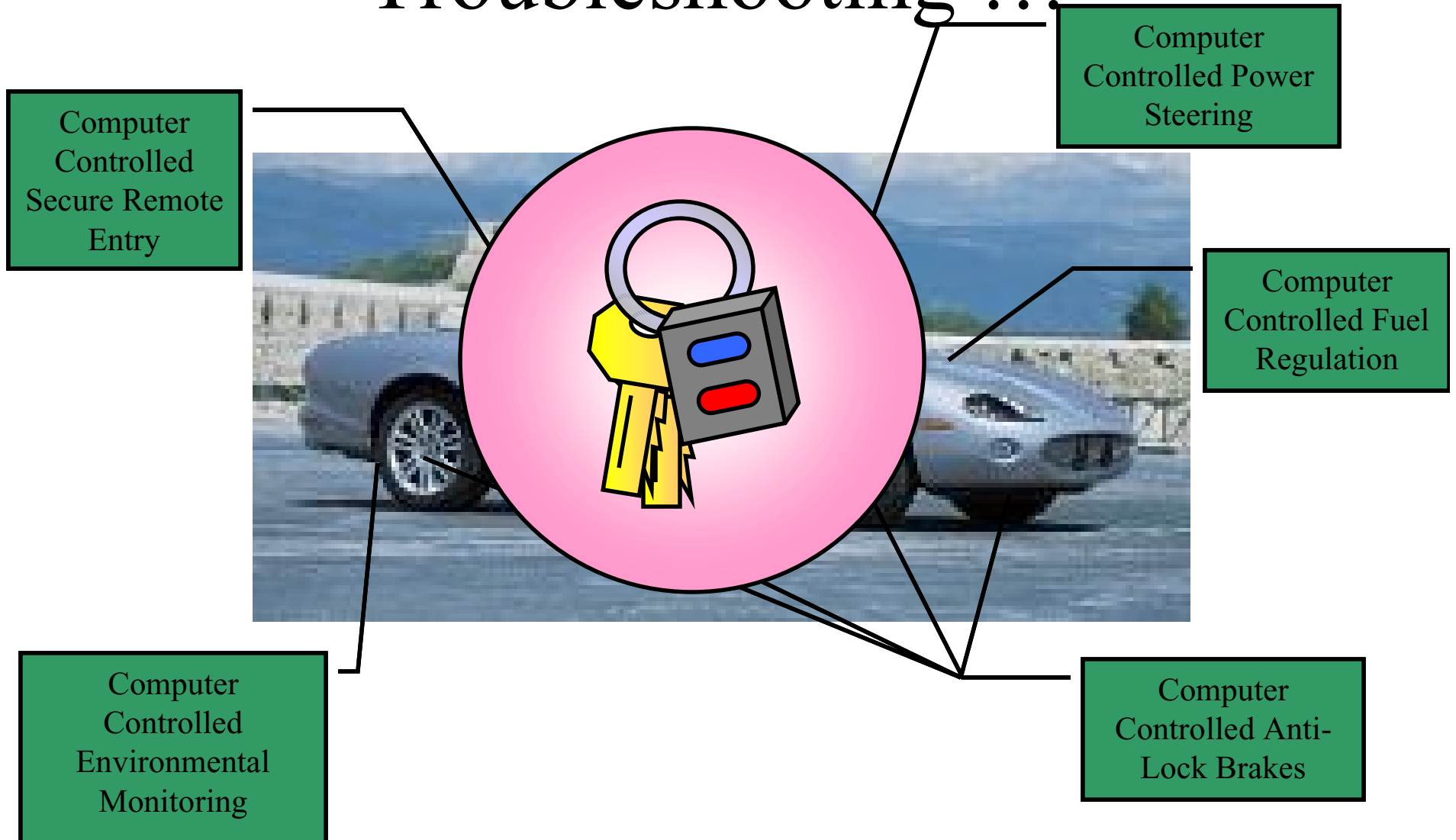Computer Controlled Power Steering

Computer Controlled Fuel Regulation

Computer Controlled Environmental Monitoring

Computer Controlled Anti-Lock Brakes

Troubleshooting …

Computer Controlled Secure Remote Entry
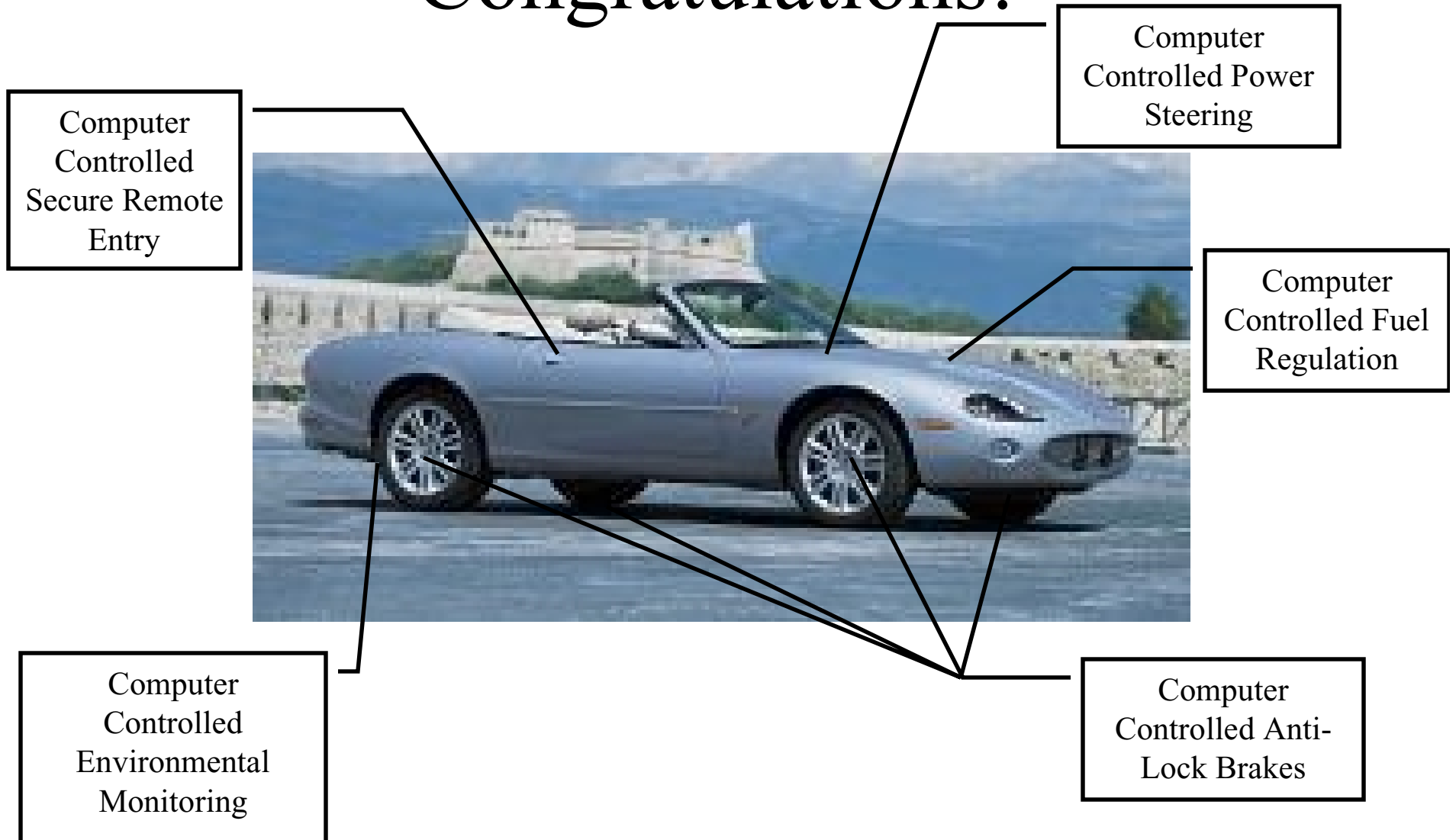
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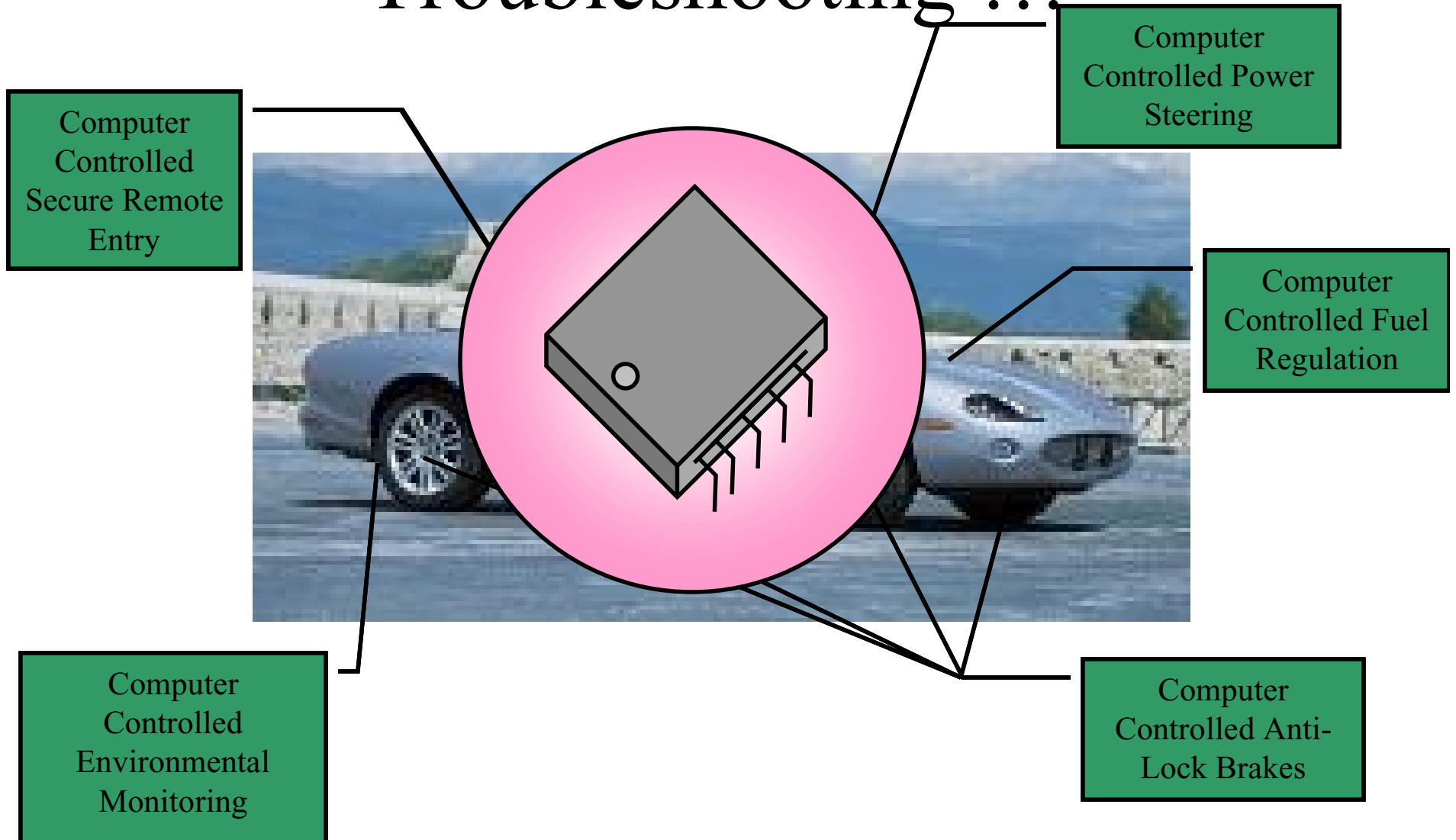
Testing …

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Troubleshooting ...

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Premise

The degree of regression testing required for a system is not proportional to the failure corrected, but to the extent of the change applied to correct the failure.

Measuring Extent of Change

- Traditional Methods
  - SLOC
  - SPR Opening/Closure Rate
  - Interface Tracing
- Proposal
  - Functional Decomposition and Synthesis
  - Total Architectural Change

Functional Dependency

- Functional Entities Exist at Multiple Levels of Resolution

- Entity-Relationship Views are Isomorphic with Hierarchies

- Hierarchies Can Establish "Order of Effect" Relationships Among Entities

Substantive Change

- Changes in Scope
- Changes in Nature
- Changes in Range
- Changes in Behavior

Tracing Change to Test Cases

- Dimensions of Testing
  - Breadth
  - Depth
- Dimensions of Change
  - Order
  - Substance

$$B \times D \triangleq O \times S$$

Questions

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