MICHIGAN STATE UNIVERSITY

Beta Presentation

Test Driven Development for Embedded Software

The Capstone Experience

Team Magna TDD4ES

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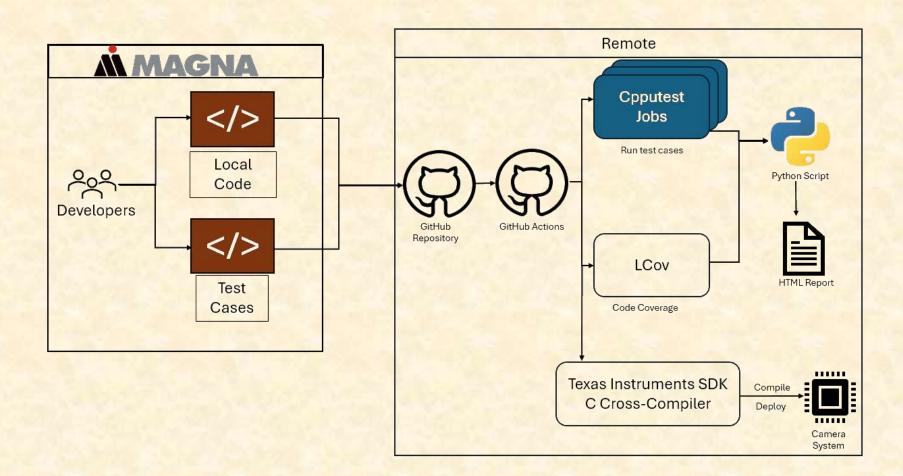


From Students... ...to Professionals

Project Overview

- Magna is one of the largest automotive suppliers.
- Problem: Engineers are working with large, untested code bases
- Provide test cases for embedded software code
- Create a continuous integration pipeline to run test cases

System Architecture



GitHub Actions – Build Workflow

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The Capstone Experience

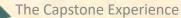
Parallel Jobs - Independent Test Cases

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The Capstone Experience

Generated Test Report

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| dcc_buff_size_Equal0 | 0.001s | PASS | |
| FailureAtvxMapUserDataObject | 0.000s | PASS | |
| cpputest_TDD4ES.Demo_app_send_test_frame.xml (2/2) | | | |
| cpputest_TDD4ES.Demo_fail_demo.xml <mark>(1/3)</mark> | | | |
| Test Name | | Time | Status |
| Fail | | 0.000s | PASS |
| MemoryLeakTest AssertionFailedError: matthew_test.cpp:77: Memory leak(s) four Allocated at: matthew_test.cpp and line: 79. Type: "malloc"(newlin | | | |



LCOV – Code Coverage Report

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| 190 | | 2 : | | | | C buffer from sense | or driver \n"); | | | |
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| 203 | | | } | | | | | | | |
| 204 | | 1 | else | | | | | | | |
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| 207 | | : | } | | Contraction of the second s | | | | | |
| 208 | | 6: | obj->ae_awt | | | | | | | |
| 209 | | 6 : | | | | t, "tivx_ae_awb_pa | rams_t", | | | |
| 210 | | 4 | | | <pre>db_params_t), NULL</pre> | | | | | |
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| 212 | | : | (| and a second | | | | | | |
| 213 | | 9 T | | | awb_result) create | failed\n"); | | | | |
| 214 | | Ø : | return | VX_FAILURE; | | | | | | |
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| 217 | | 6: | ob]->node_a | aewo = tivxAewb | Node(obj->graph, | b config. | | | | |

The Capstone Experience

What's left to do?

- Features
 - GitHub Actions integration for Multi-Cam codebase
- Stretch Goals
 - GitHub Status Badges
 - Additional GitHub Actions integration (pull request blocker, email notifications)
- Other Tasks
 - Technical documentation
 - Project Video

Questions?

