MICHIGAN STATE UNIVERSITY Project Plan Integration & Testing Suite for ADAS Sensors

The Capstone Experience

Team Bosch

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From Students... ...to Professionals

Functional Specifications

- Developers writing code for ADAS Sensors in version control system
 - Push to get ADAS systems to market quickly is higher than ever
- Current testing involves a compile test and some manual functionality tests
 - Manual functionality tests slow down process greatly
- CICT suite automates manual functionality tests
 - Automation of sensor tests can speed up testing process by days
- Failing functionality tests stops developer from merging code to higher path
 - Catches errors in testing instead of in vehicle

Design Specifications

Visualized Pipelines

Capability to see status of each test as it runs

Dashboard of running jobs

 Includes info like job status, build number, commit number, branch name, commit message, duration of build and time completed

Send email notifications when tests broken

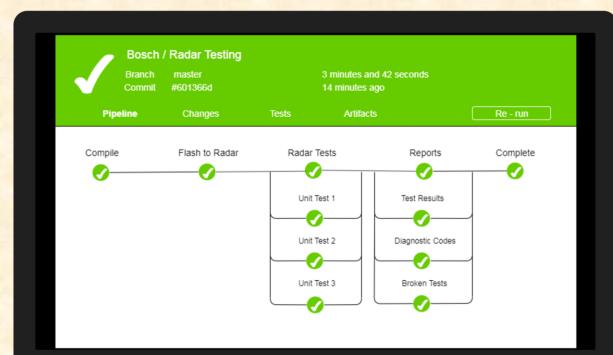
- If someone runs a build and that fails certain tests, an email notification will be sent to the test owner
- Powered by Blue Ocean
 - Plugin for Jenkins

Screen Mockup: Main Dashboard

	Pipe	elines	Applicati	ons Reports	Administration	Username	
\bigcirc	Bosch / R Testing		*			Completed	
Activity Branches		iches	Pull Request				
Status	Build	Commit	Branch	Message	Duration	Completed	
In Progress	423	601366d	master	Updated dashboard color	32 Minutes	-	
Complete	423	601366d	master	Updated dashboard color	32 Minutes	82 seconds ago	
Warning	422	601366d	master	Jenkins updates	32 Minutes	82 seconds ago	C
Failed	421	601366d	master	Updated dashboard color	32 Minutes	82 seconds ago	C

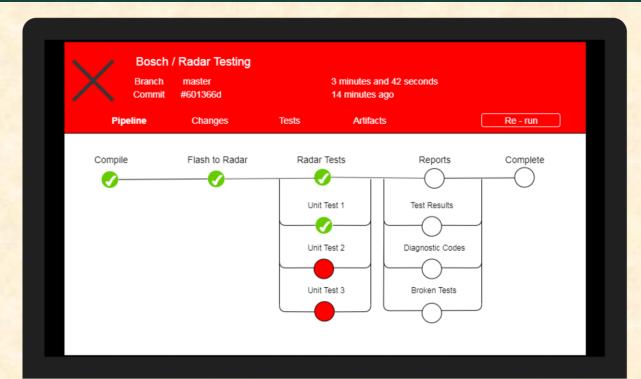


Screen Mockup: Successful Build





Screen Mockup: Failed Build

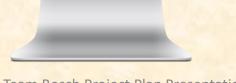




Team Bosch Project Plan Presentation

Screen Mockup: Personalized Dash.

		Administration		
	Pipelines			Username
🗢 Bosch / Radar T	esting ★			
Dashboard New Pipeline				
	Waiting for your approval			
				**
	You contributed changes to)		
	Jenkins infra / Jenkins.io	feature/PANTS- 432	#447d8e1	ి 🏶 ★
	Your favorite pipelines			
	Jenkins / Bosch	feature/PANTS- 432	#447d8e1	**
	Bosch / JUnit plugin	feature/PANTS- 432	#447d8e1	C 🏶 🗙
	Bosch / Radar Testing	feature/JENKINS- 4101	#447d8e1	**



Technical Specifications

• Git

- Version Control system for code
- Any git repository can be used, we use GitHub

• Jenkins

- Continuous Integration software used in conjunction with a git repository
- Used for building, deploying, and testing new code

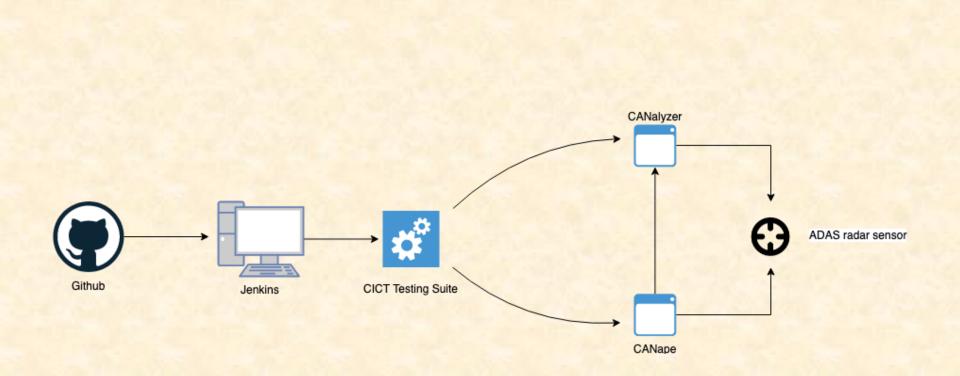
CANape

- Used for calibration of radar sensor
- Reports and records different values captured by radar sensor

CANalyzer

Data analysis software that receives frames from CANape

System Architecture



System Components

- Hardware Platforms
 - ADAS radar sensor
- Software Platforms / Technologies
 - Git
 - Jenkins
 - CANape
 - CANalyzer



Risks

- Job Weight Distribution Optimization
 - Optimization of running processes requested; multiple machines if need be
 - Find the average amount of time it takes Bosch to finish a job, as well as the job load, run tests and simulations to find a formula that distributes tasks well
- Using CAN
 - No one on team very familiar with CAN protocol
 - Research CAN and software given to us, keep up constant contact with client for guidance
- Exporting CAN values
 - Accessing values from CAN software in external tests
 - Research documentation on python scripting and sending values out
- Radar Hardware and Software Limitations
 - Do not have readable code for radar to look at
 - Gather as much info about radar as possible, work with what we do know

Questions?

