MICHIGAN STATE UNIVERSITY

Project Plan

Integration & Testing Suite for ADAS Sensors

The Capstone Experience

Team Bosch

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From Students…
…to Professionals

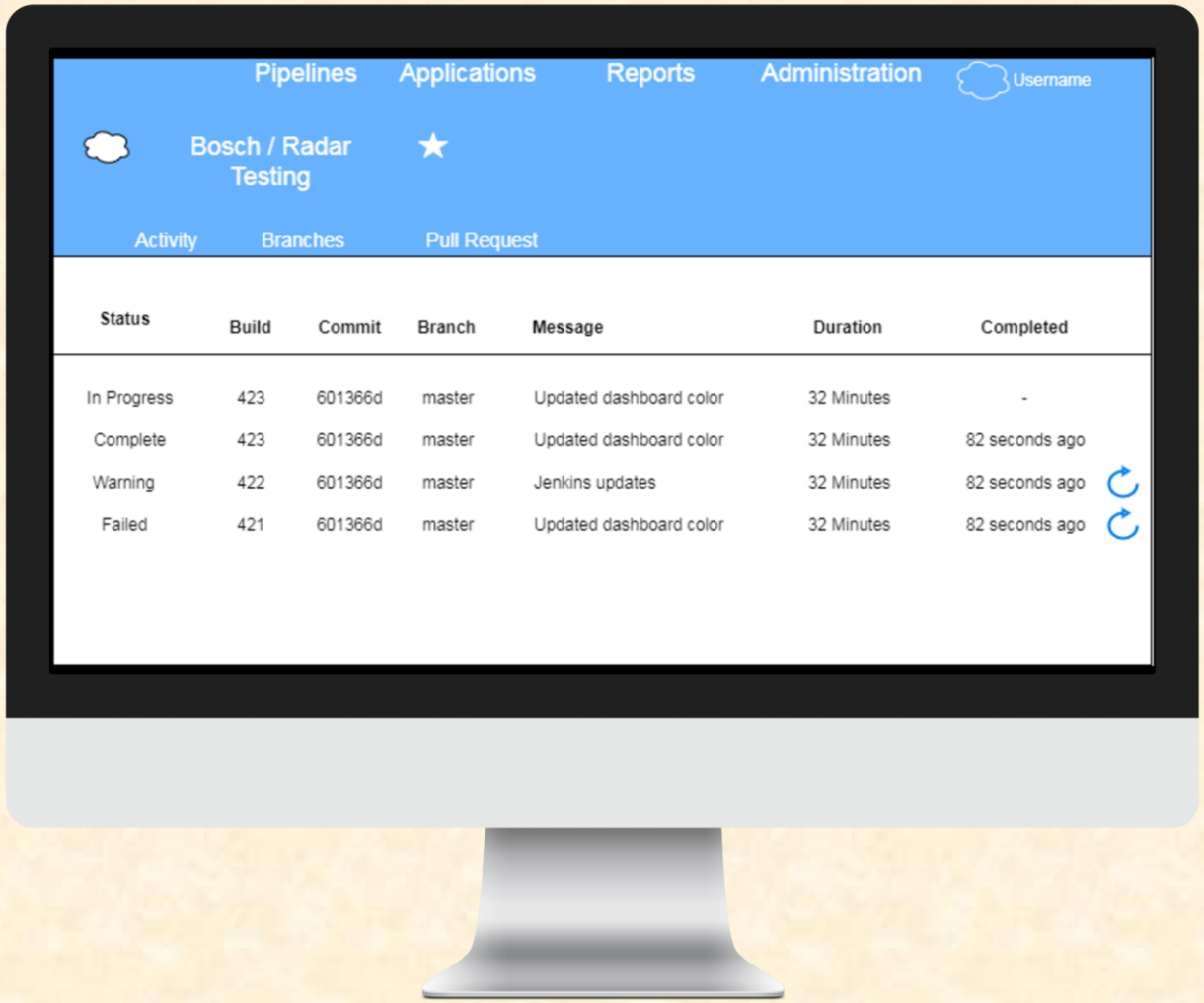
Functional Specifications

- 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

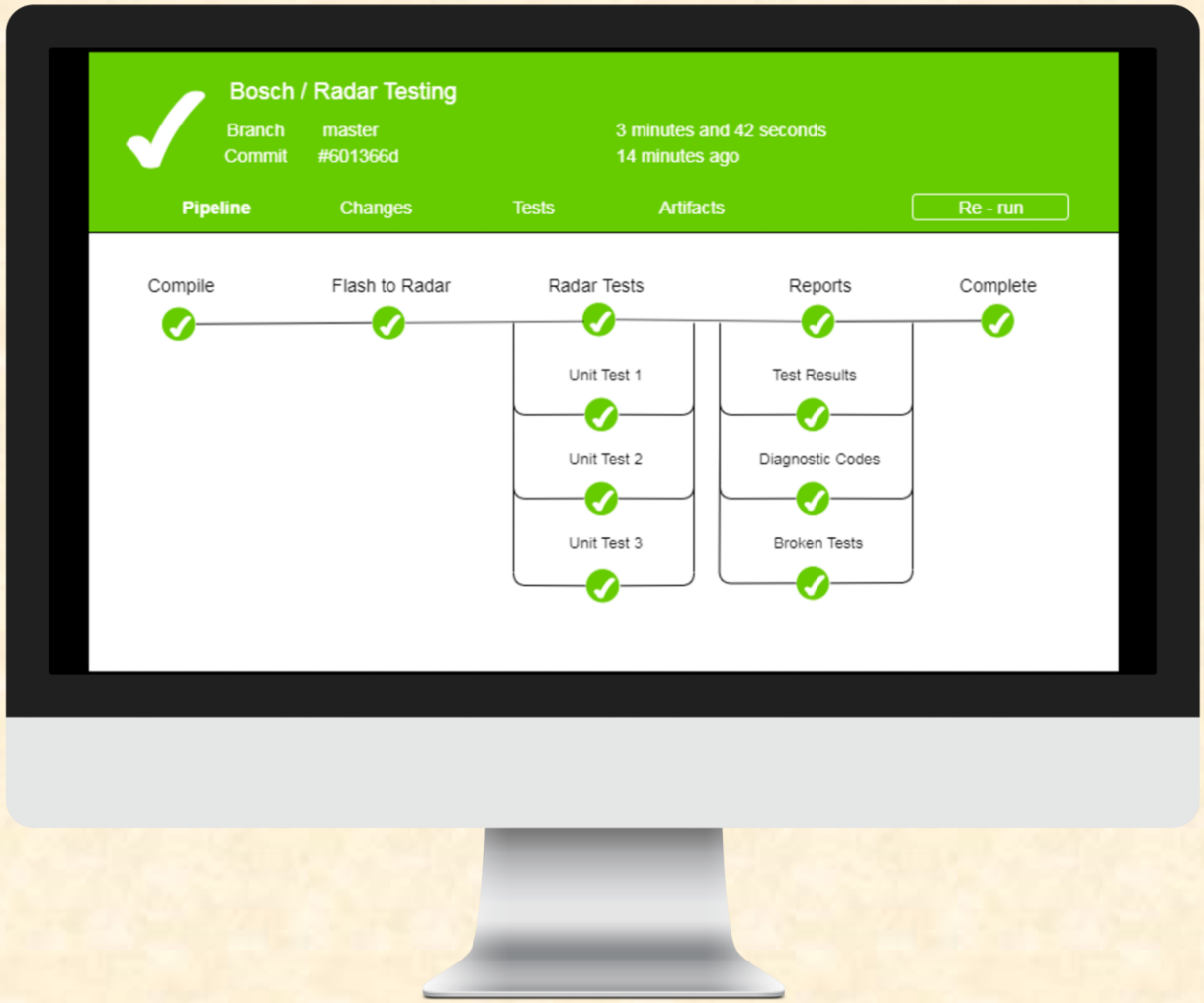
Design Specifications

- 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

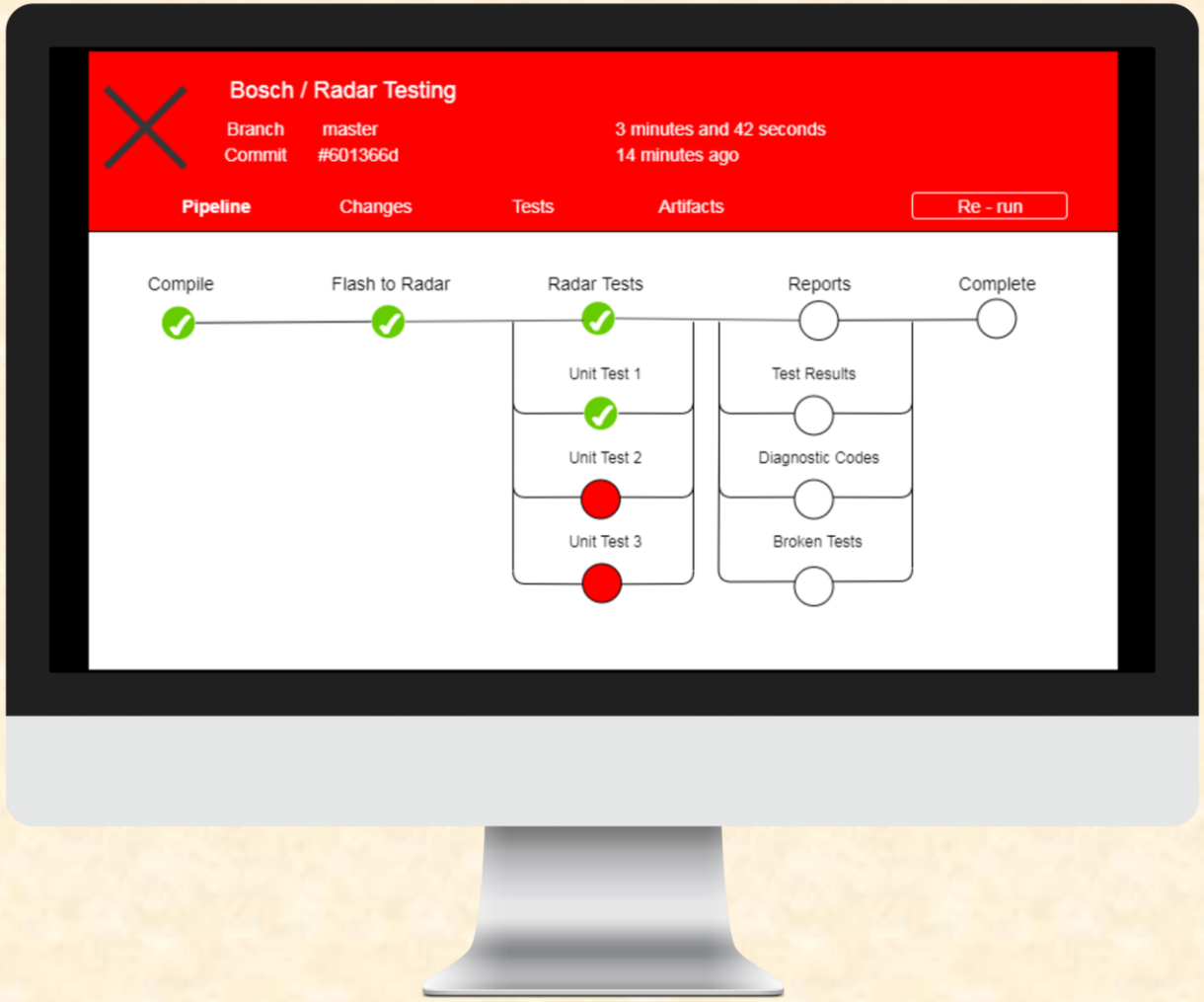
Screen Mockup: Main Dashboard



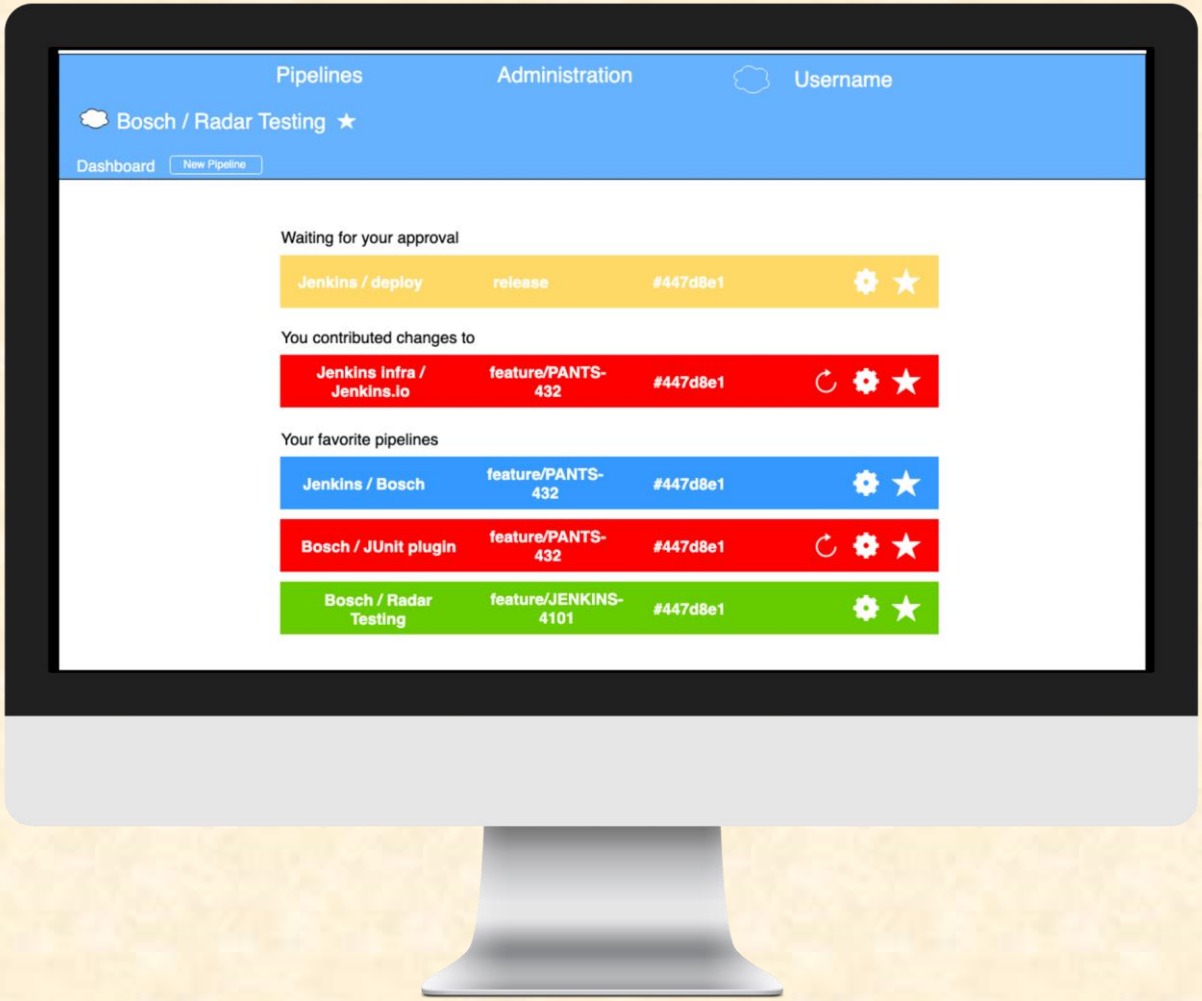
Screen Mockup: Successful Build



Screen Mockup: Failed Build



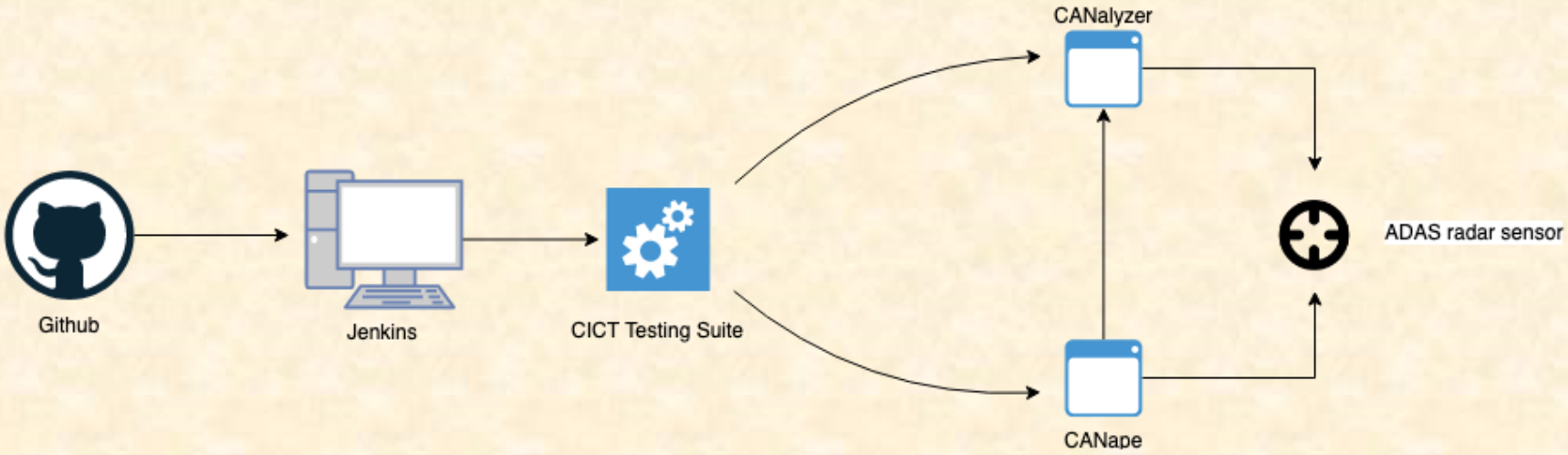
Screen Mockup: Personalized Dash.



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?