

# GreenHouse Group 1

## *Final Report*

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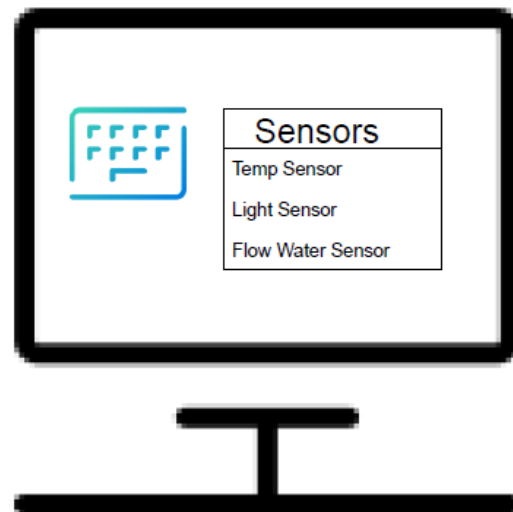
Date: 2021-09-29

## What did we want to achieve?


### GreenHouse Testing

We will test the HMI module at the greenhouse. We will set up the tests in SimuLink and send them via labkit1. Labkit2 reads data from the CAN bus and reacts to this. If it is data to be displayed on the GreenHouse display, data about this is sent via serial communication to the computer that has an emulator of display/keyboard. You can also send data from the emulator to labkit2 which changes the status of sensors in labkit2.

Emulate GreenHouse Key/LCD



Serial  
USB

 Labkit 1


#### Running Tests

**Purpose:** Run tests from SimuLink

**SoftWare:** Lab kit

**Connected to:** SimuLink

CAN

 Labkit 2

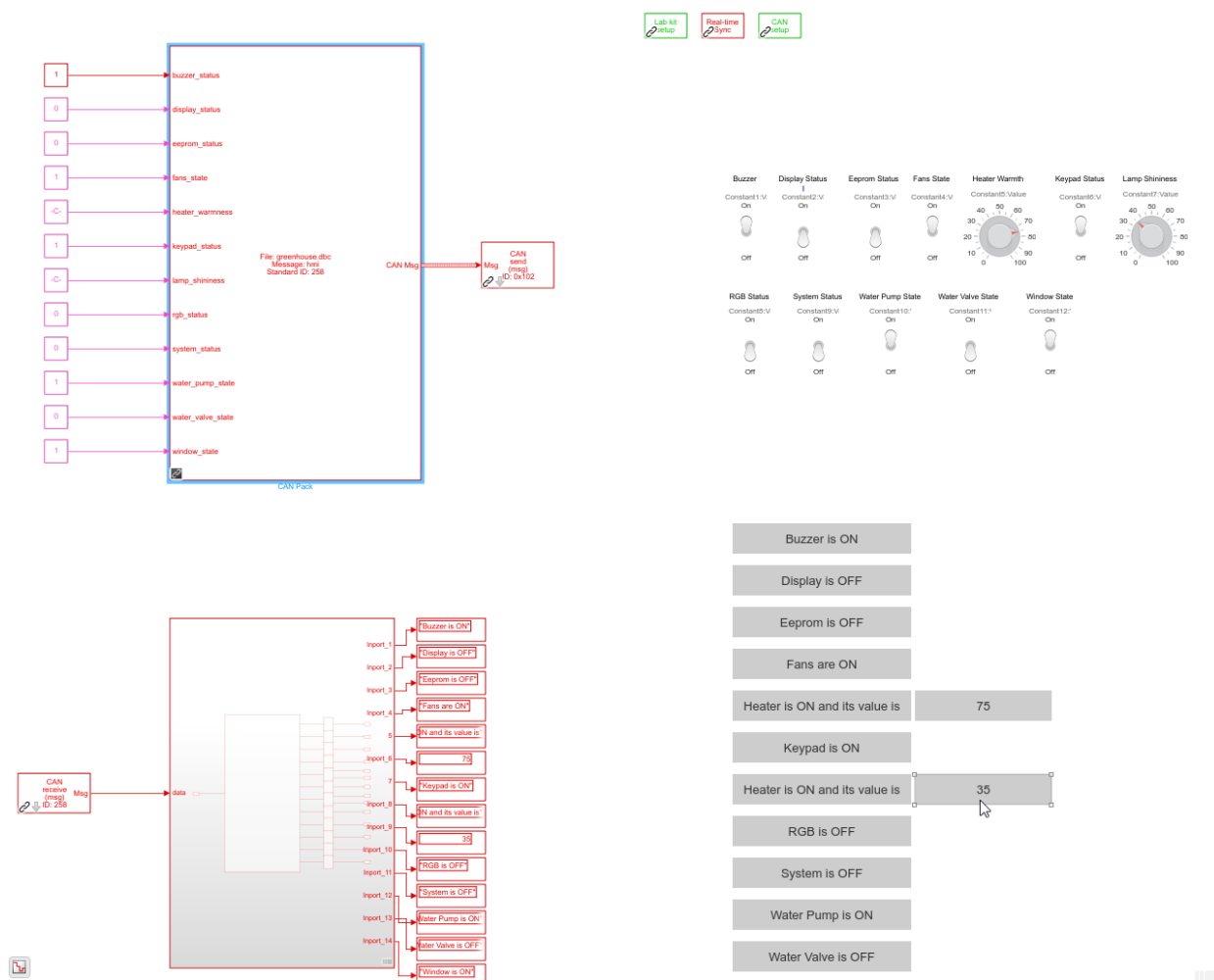
#### GreenHouse HMI

**Purpose:** Emulate GreenHouse hardware

**SoftWare:** Modded Lab Kit

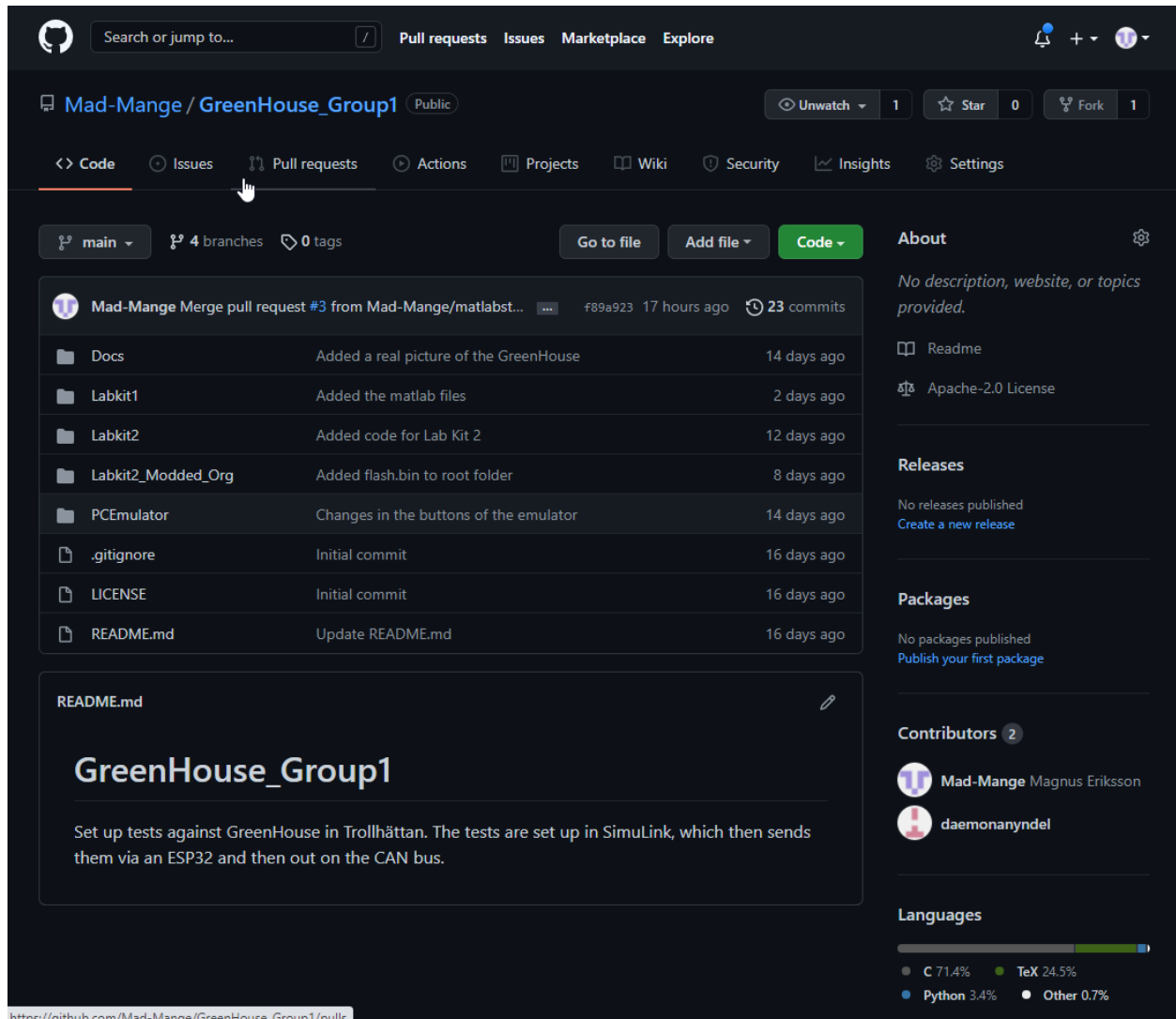
## How did it go?

We worked hard towards the goal from the beginning but soon realized that we might have a little trouble catching up with everything we anticipated. We chose to make a few things a little easier to keep up with everything. So we removed the emulation on the PC and chose to show that material in Simulink instead.



## Resources used

- Simulink, Labkits and GreenHouse
- GitHub to distribute and keep track of our versions of software
- Discord and Zoom to work together



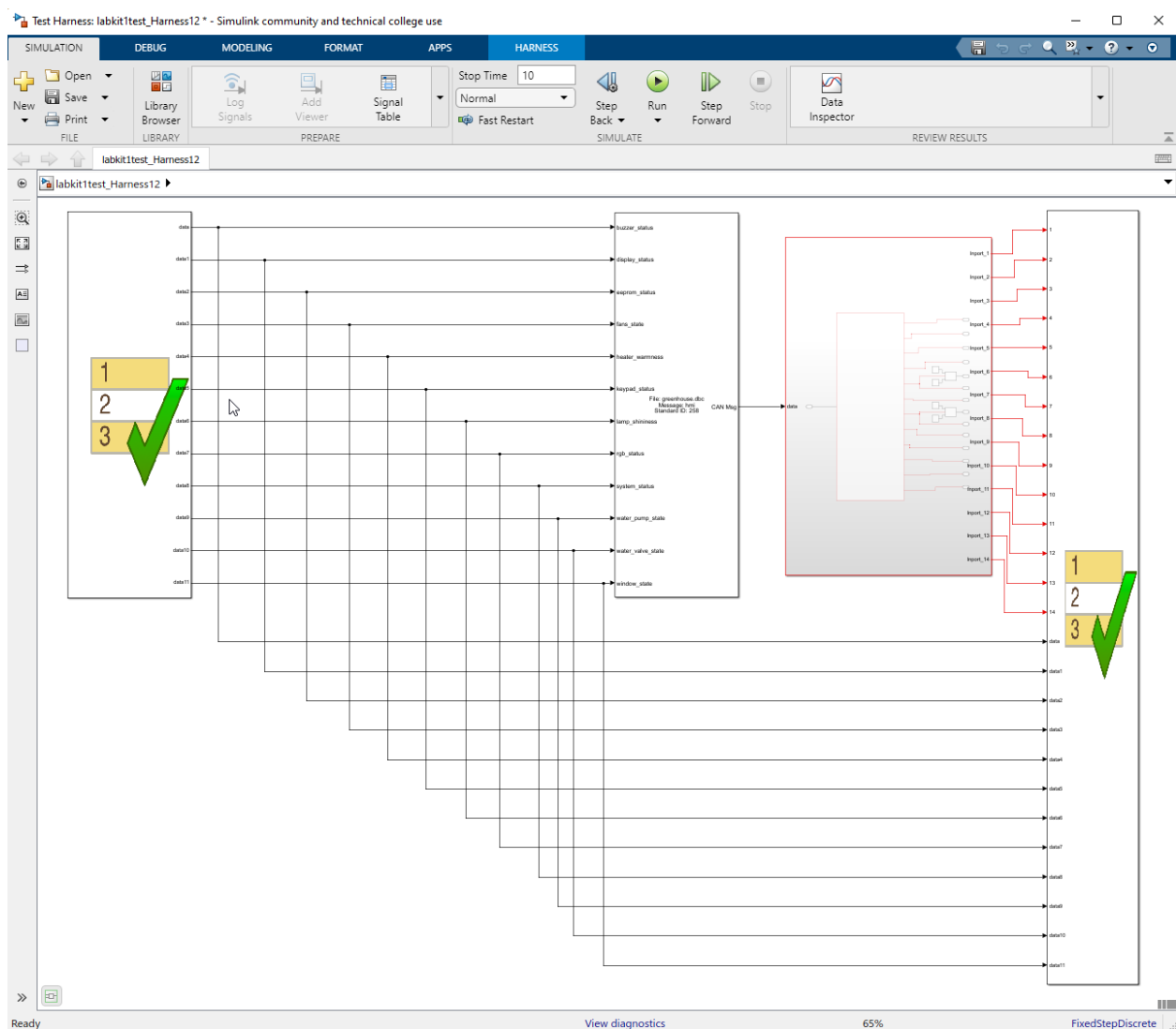
The screenshot displays the GitHub interface for the repository **Mad-Mange / GreenHouse\_Group1**. The repository is public and has 1 fork, 0 stars, and 1 watch. The main navigation bar includes links for Code, Issues, Pull requests, Actions, Projects, Wiki, Security, Insights, and Settings. The repository structure is shown with a list of files and folders, including `Docs`, `Labkit1`, `Labkit2`, `Labkit2_Modded_Org`, `PCEmulator`, `.gitignore`, `LICENSE`, and `README.md`. The `README.md` file is open, showing the title **GreenHouse\_Group1** and a description: "Set up tests against GreenHouse in Trollhättan. The tests are set up in SimuLink, which then sends them via an ESP32 and then out on the CAN bus." The right sidebar shows repository statistics, including a list of contributors (Mad-Mange, Magnus Eriksson, daemonanyndel) and a language usage chart showing C (71.4%), TeX (24.5%), Python (3.4%), and Other (0.7%).

https://github.com/Mad-Mange/GreenHouse\_Group1/pulls

## Testing and results

All our tests had to be performed on our model in Simulink as we did not really get the expected results when driving towards the Greenhouse due to technical problems. We would need a few more hours with the hardware so it would probably work great.

- Test Harness



- Test Signals

- Test Report

## New Test Case 1

### Test Result Information

Result Type: Test Case Result  
 Parent: None  
 Start Time: 28-Sep-2021 22:43:35  
 End Time: 28-Sep-2021 22:43:36  
 Outcome: **Passed**

### Test Case Information

Name: New Test Case 1  
 Type: Baseline Test

### Simulation

#### System Under Test Information

Model: labkit1test  
 Harness: labkit1test\_Harness12  
 Harness Owner: labkit1test/Subsystem12  
 Release: Current  
 Simulation Mode: normal  
 Override SIL or PIL Mode: 0  
 Configuration Set: esp32\_currentConfigObj  
 Start Time: 0  
 Stop Time: 10  
 Checksum: 2146938175 2579099657 1619783866 3604602056  
 Simulink Version: 10.3  
 Model Version: 1.17  
 Model Author: user  
 Date: Mon Sep 27 10:14:48 2021  
 User ID: user  
 Model Path: C:\Users\user\Documents\SoftwareTesterStuff\Greenhouse Stuff\labkit1test.slx  
  
 Machine Name: W105  
 Solver Name: FixedStepDiscrete  
 Solver Type: Fixed-Step  
 Fixed Step Size: 0.20000000000000001

## What did we learn?

- Really fun project when you have a real physical object to work against. Now you understand better how difficult it can be to predict how the hardware product will react with its software and tests. We think it is important to use the hardware as early in the project as possible.