

Open Source SW & Lab - Summer 2023

7. GitHub

Walid Abdullah Al

Computer and Electronic Systems Engineering
Hankuk University of Foreign Studies



Computer Vision Lab
Hankuk University of Foreign Studies

Based on:

Pro Git (2022) by Scott Chacon, Ben Straub

GitHub

- **Largest host for Git repositories**
- **Central point of collaboration for millions of developers**
- **Main usage in OSS development**
 - Git hosting
 - Issue tracking
 - Code review
 - Etc.

GitHub: contributing to a project

- If you want to contribute to a project
- But do not have push access
- You can “fork” the project
- **Forking projects**
 - GitHub will make a copy under your account
 - With full access
 - Thus, projects do not need to add collaborators
- **After pushing to a forked project**
 - Create pull request
 - This starts a discussion thread with code review
 - The owner and contributors communicate
 - The owner merges it in, when he is happy

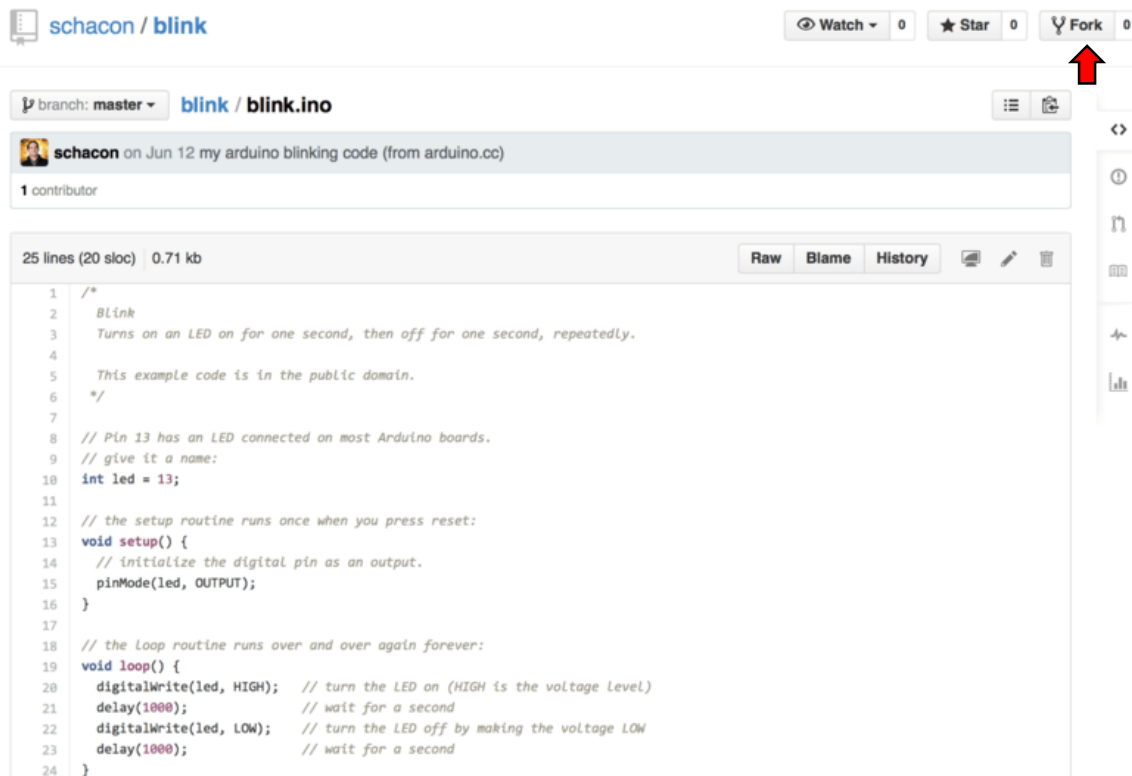


The GitHub Flow

- **Centered on**
 - Pull requests
 - Topic branches workflow
- **General flow:** integration-manager workflow
 - Fork the project
 - Create a topic branch
 - Make some commits
 - Push this branch to your fork
 - Open a Pull Request
 - Discuss, and optionally continue committing
 - The project owner merges or closes the Pull Request
 - Sync the updated master back to your fork

Example

- Tony is looking for code to run on his Arduino programmable microcontroller and has found a great program file on GitHub



The screenshot shows the GitHub interface for the repository 'schacon / blink'. At the top, there are buttons for 'Watch', 'Star', and 'Fork'. A red arrow points to the 'Fork' button. Below these buttons, the repository name 'blink / blink.ino' is shown. The commit history shows a single commit by 'schacon' on Jun 12. The file 'blink.ino' is displayed with 25 lines of code. The code is a simple Arduino sketch for blinking an LED.

```
1 /*
2  * Blink
3  * Turns on an LED on for one second, then off for one second, repeatedly.
4  *
5  * This example code is in the public domain.
6  */
7
8 // Pin 13 has an LED connected on most Arduino boards.
9 // give it a name:
10 int led = 13;
11
12 // the setup routine runs once when you press reset:
13 void setup() {
14   // initialize the digital pin as an output.
15   pinMode(led, OUTPUT);
16 }
17
18 // the loop routine runs over and over again forever:
19 void loop() {
20   digitalWrite(led, HIGH); // turn the LED on (HIGH is the voltage level)
21   delay(1000); // wait for a second
22   digitalWrite(led, LOW); // turn the LED off by making the voltage LOW
23   delay(1000); // wait for a second
24 }
```

Problem:
blinking too fast

Possible improvement:
Increase delay to 3s

How can we contribute to the project?
Click the “**fork**” button

Fork: Clone – edit – Push back

- **After forking**

- A copy is created at:

<https://github.com/tonychacon/blink>

- **Clone the fork, create a topic branch, make the code change, and push to the fork**

```
$ git clone https://github.com/tonychacon/blink (1)  
Cloning into 'blink'...
```

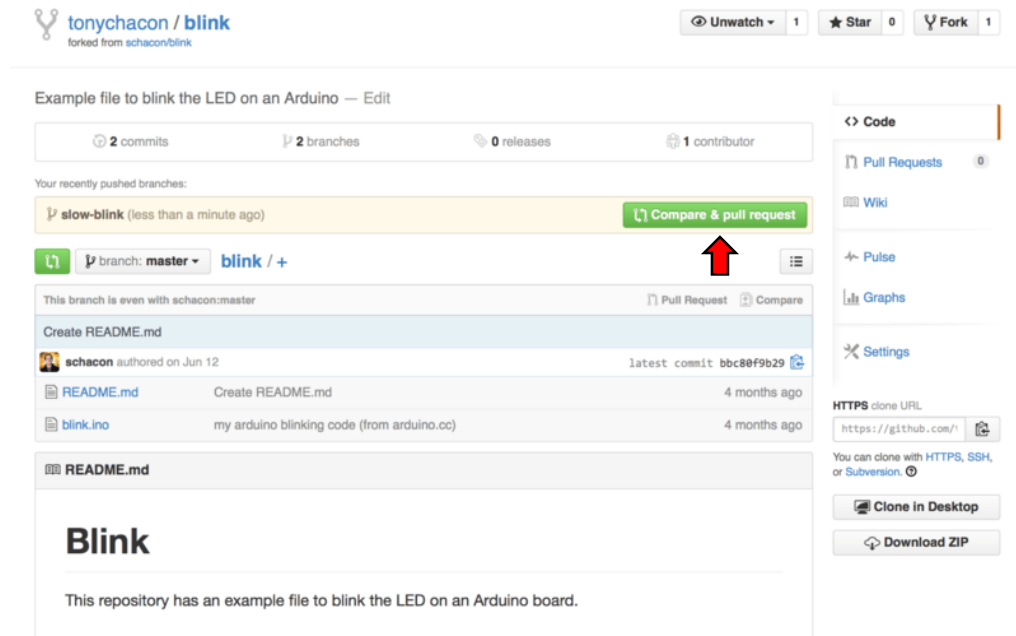
```
$ cd blink  
$ git checkout -b slow-blink (2)  
Switched to a new branch 'slow-blink'
```

```
$ sed -i '' 's/1000/3000/' blink.ino (macOS) (3)  
# If you're on a Linux system, do this instead:  
# $ sed -i 's/1000/3000/' blink.ino (3)
```

```
$ git commit -a -m 'Change delay to 3 seconds' (5)  
[slow-blink 5ca509d] Change delay to 3 seconds  
1 file changed, 2 insertions(+), 2 deletions(-)  
  
$ git push origin slow-blink (6)  
Username for 'https://github.com': tonychacon  
Password for 'https://tonychacon@github.com':  
Counting objects: 5, done.  
Delta compression using up to 8 threads.  
Compressing objects: 100% (3/3), done.  
Writing objects: 100% (3/3), 340 bytes | 0 bytes/s, done.  
Total 3 (delta 1), reused 0 (delta 0)  
To https://github.com/tonychacon/blink  
* [new branch]      slow-blink -> slow-blink
```

Pull Request

- **After pushing, if go back to fork at GitHub**
 - GitHub will present the pull request option
 - You can alternatively go to the “Branches” page at **<https://github.com/<user>/<project>/branches>** to locate your branch and open a new Pull Request from there



After Clicking Pull Request

- **Fill out**
 - the pull request title and description
- **Check all the commits and differences**
- **Click “Create pull request”**

The screenshot shows a GitHub pull request page for the repository 'tonychacon / blink', which is a fork of 'schacon/blink'. The pull request is titled 'Three seconds is better' and is in the 'Ready for review' state. The description states: 'Studies have shown that 3 seconds is a far better LED delay than 1 second.' with a link to 'http://studies.example.com/optimal-led-delays.html'. The interface indicates that the pull request is 'Able to merge' and that the branches can be automatically merged. A green 'Create pull request' button is visible. Below the title, it shows '1 commit' and '1 file changed'. The commit history for 'tonychacon' shows a commit 'three seconds is better' with hash 'db44c53'. The diff view shows changes to 'blink.ino', with a comparison between the 'schacon:master' branch and the 'tonychacon:slow-blink' branch. The diff highlights changes to the delay values in the 'loop()' function, changing from 1000 to 3000 milliseconds.

tonychacon / blink
forked from schacon/blink

Unwatch 1 Star 0 Fork 1

schacon:master ... tonychacon:slow-blink Edit

Three seconds is better

Write Preview Parsed as Markdown Edit in fullscreen

Studies have shown that 3 seconds is a far better LED delay than 1 second.

<http://studies.example.com/optimal-led-delays.html>

Attach images by dragging & dropping or selecting them.

✓ Able to merge.
These branches can be automatically merged.

Create pull request

1 commit 1 file changed 0 commit comments 1 contributor

Commits on Oct 01, 2014

tonychacon three seconds is better db44c53

Showing 1 changed file with 2 additions and 2 deletions.

Unified Split

4 blink.ino View

```
@@ -18,7 +18,7 @@ void setup() {  
18 18 // the loop routine runs over and over again forever:  
19 19 void loop() {  
20 20 digitalWrite(led, HIGH); // turn the LED on (HIGH is the voltage level)  
21 - delay(1000); // wait for a second  
+ delay(3000); // wait for a second  
22 digitalWrite(led, LOW); // turn the LED off by making the voltage LOW  
23 - delay(1000); // wait for a second  
+ delay(3000); // wait for a second  
24 24 }
```


Iterating on a Pull Request

- The owner now can
 - Merge it / reject it / comment on it

The screenshot shows a GitHub Pull Request titled "Three seconds is better #2" for the repository "schacon / blink". The pull request is from "tonychacon:slow-blink" to "schacon:master". It shows 1 file changed with 2 additions and 2 deletions. The code diff for "blink.ino" is displayed, showing changes to the delay times in the loop routine. A comment box is open at the bottom of the diff, containing the text: "I believe it would be better if the light was off for 4 seconds and on for just 3." The comment box also has a "Close form" button and a "Comment on this line" button.

schacon / blink

Watch 0 Star 0 Fork 1

Three seconds is better #2

Open tonychacon wants to merge 1 commit into schacon:master from tonychacon:slow-blink

Conversation 0 Commits 1 Files changed 1

Showing 1 changed file with 2 additions and 2 deletions.

Unified Split

4 blink.ino

Show notes View

```
18 // the loop routine runs over and over again forever:
19 void loop() {
20   digitalWrite(led, HIGH); // turn the LED on (HIGH is the voltage level)
21   - delay(1000); // wait for a second
22   digitalWrite(led, LOW); // turn the LED off by making the voltage LOW
23   - delay(1000); // wait for a second
24 }
```

18 // the loop routine runs over and over again forever:
19 void loop() {
20 digitalWrite(led, HIGH); // turn the LED on (HIGH is the voltage level)
21 + delay(3000); // wait for a second
22 digitalWrite(led, LOW); // turn the LED off by making the voltage LOW
23 + delay(3000); // wait for a second
24 }

Write Preview

Parsed as Markdown Edit in fullscreen

I believe it would be better if the light was off for 4 seconds and on for just 3.

Attach images by dragging & dropping, selecting them, or pasting from the clipboard.

Close form Comment on this line


Pull Request discussion page

Three seconds is better #2

Edit New Issue

Open tonychacon wants to merge 1 commit into `schacon:master` from `tonychacon:slow-blink`

Conversation 1 Commits 1 Files changed 1 +2 -2




tonychacon commented 6 minutes ago

Studies have shown that 3 seconds is a far better LED delay than 1 second.
<http://studies.example.com/optimal-led-delays.html>

three seconds is better

db44c53


<>

schacon commented on the diff just now

blink.ino

View full changes


		((6 lines not shown))
22	22	<code>digitalWrite(led, LOW); // turn the LED off by making the voltage LOW</code>
23	-	<code>delay(1000); // wait for a second</code>
	23	<code>+ delay(3000); // wait for a second</code>

schacon added a note just now

Owner

I believe it would be better if the light was off for 4 seconds and on for just 3.

Add a line note

schacon commented just now

Owner

If you make that change, I'll be happy to merge this.

Labels

None yet

Milestone

No milestone

Assignee



No one—assign yourself

Notifications

Unsubscribe

You're receiving notifications because you commented.

2 participants



Lock pull request

10




Do the changes and re-commit

- **Only, push to the fork**
- **Pull-request would be updated automatically**
- **However, no notification to owner**
 - Therefore, comment explicitly

Comment history

Three seconds is better #2

 **Open** tonychacon wants to merge 3 commits into `schacon:master` from `tonychacon:slow-blink`

 Conversation 3  Commits 3  Files changed 1



tonychacon commented 11 minutes ago


Studies have shown that 3 seconds is a far better LED delay than 1 second.

<http://studies.example.com/optimal-led-delays.html>

 three seconds is better

db44c53

  **schacon** commented on an outdated diff 5 minutes ago


 Show outdated diff



schacon commented 5 minutes ago


Owner

If you make that change, I'll be happy to merge this.

 **tonychacon** added some commits 2 minutes ago

 longer off time

0c1f66f

 remove trailing whitespace

ef4725c



tonychacon commented 10 seconds ago

I changed it to 4 seconds and also removed some trailing whitespace that I found. Anything else you would like me to do?



This pull request can be automatically merged.

You can also merge branches on the [command line](#).



Merge pull request

Today's team assignment

- **Maintainer/member-1:**
 - Creates a public repository in Github
 - Add pong.py file to the repository
 - (uploaded on Eclass)
 - **Does not add collaborator**
- **Other members:**
 - Fork the repository
 - Create topic branches to do their work
 - Create a pull request
- **Maintainer:**
 - Merge pull-requests

Task-distribution

Member1:

Gameloop
Simulate.update_obj()

Member2:

Pong.update_ball_pos()
Pong.process_fall()

Member3:

Pong.process_border_hit()
Pong.process_player_hit()

Each member has two tasks.

Flow:

- Choose a task.
- Create a branch for it.
- Commit your work.
- Create a pull request.

- Then, choose the other task and do the same

Submit on Eclass

- Screenshot of the final game-window
- Your repository link