

만만한 주제인줄 알았는데 ~어느샌가 인간적

으로 무리인 프로젝트가 되어버린 사연~



리듬게임 컨트롤러 제작하기

Team. 종현이의 꿈

박종현 | 모아림 | 유정빈

Getting Started

| 1. 아이디어 제안 배경

리듬게임을 하다가 키보드를 날려먹은 나는

| 2. 작품 설명

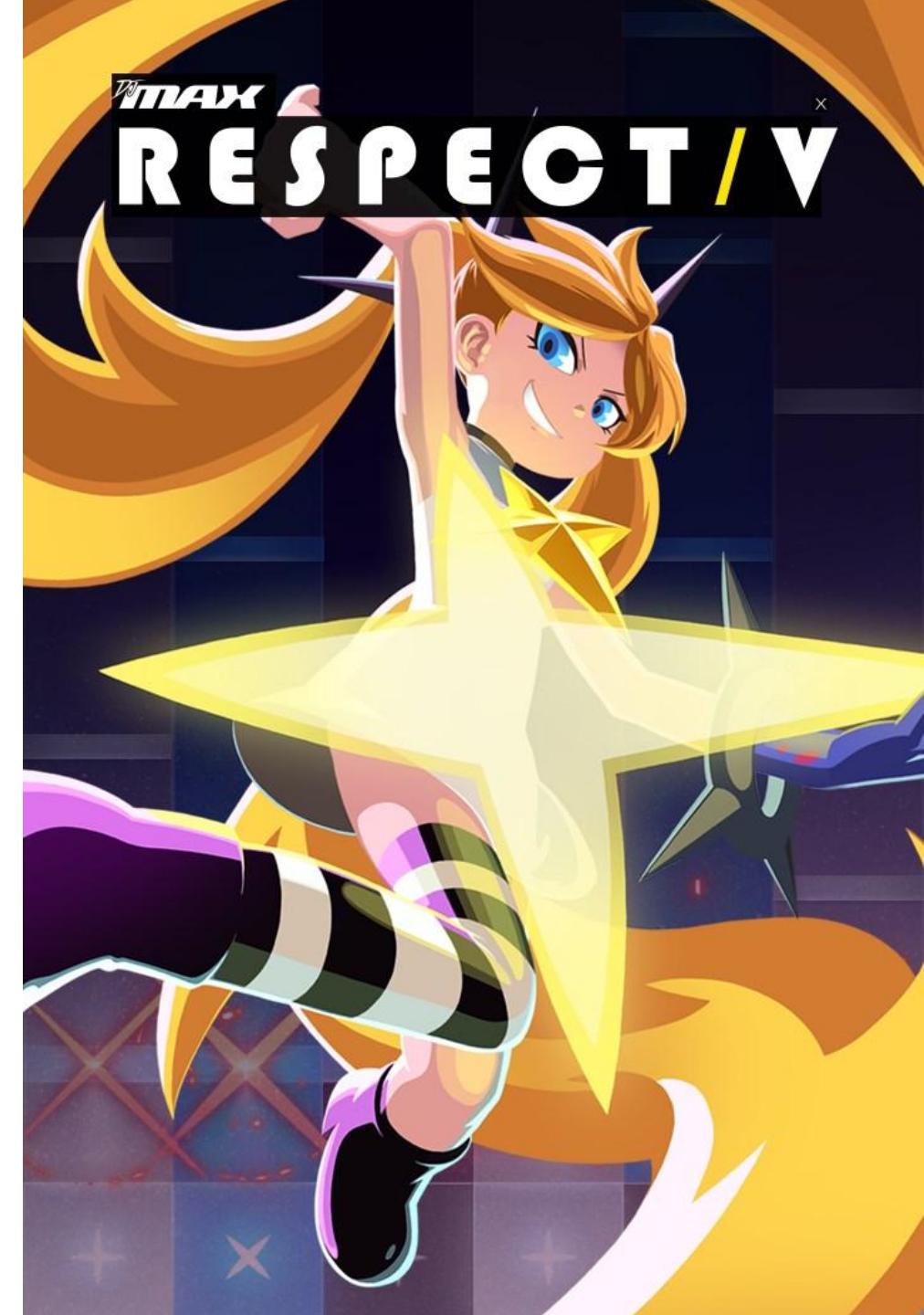
가끔씩 일본어로 안된다고 중얼거리는 박종현

| 3. HW와 SW 개발 과정

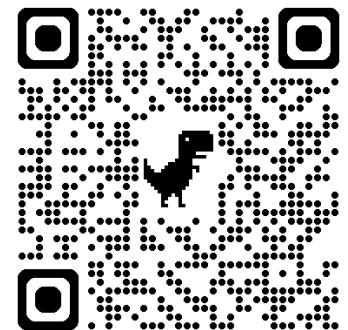
소스코드 5만줄의 프로그램은 의외로 평범

| 4. 시행착오

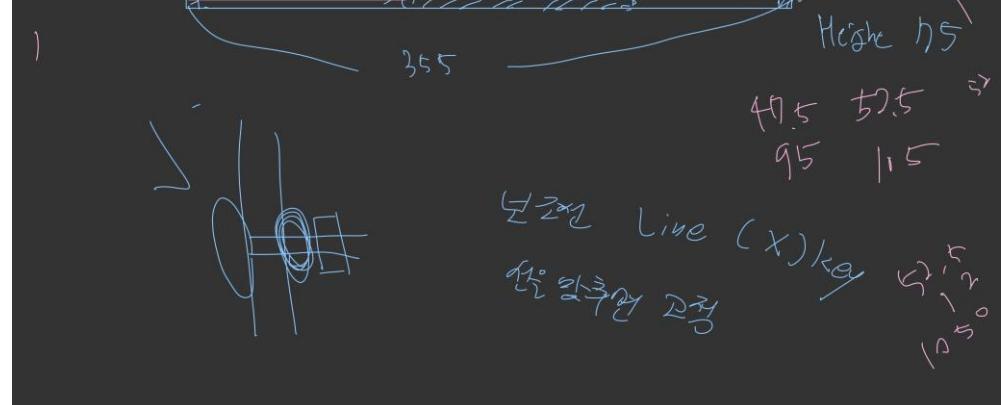
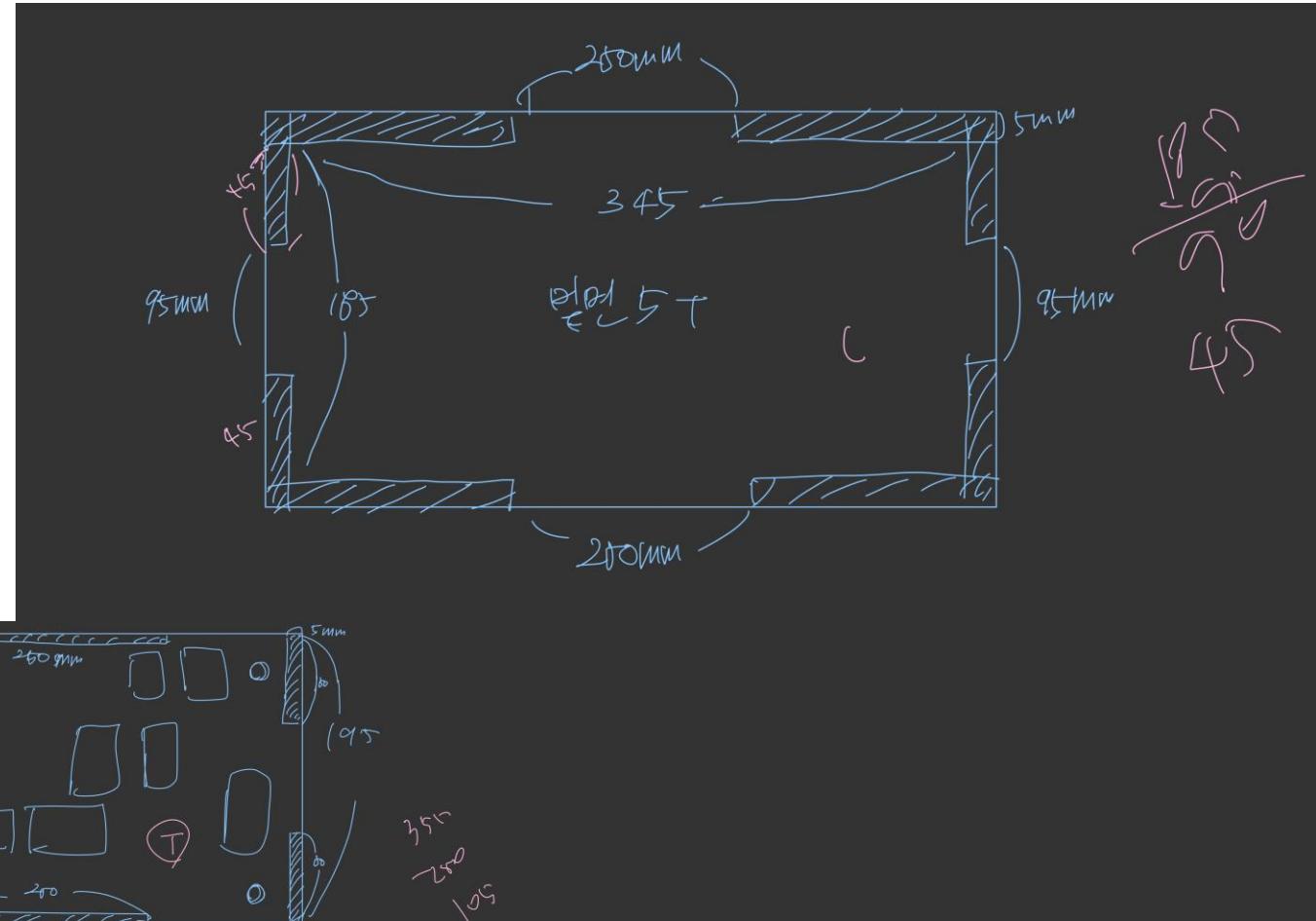
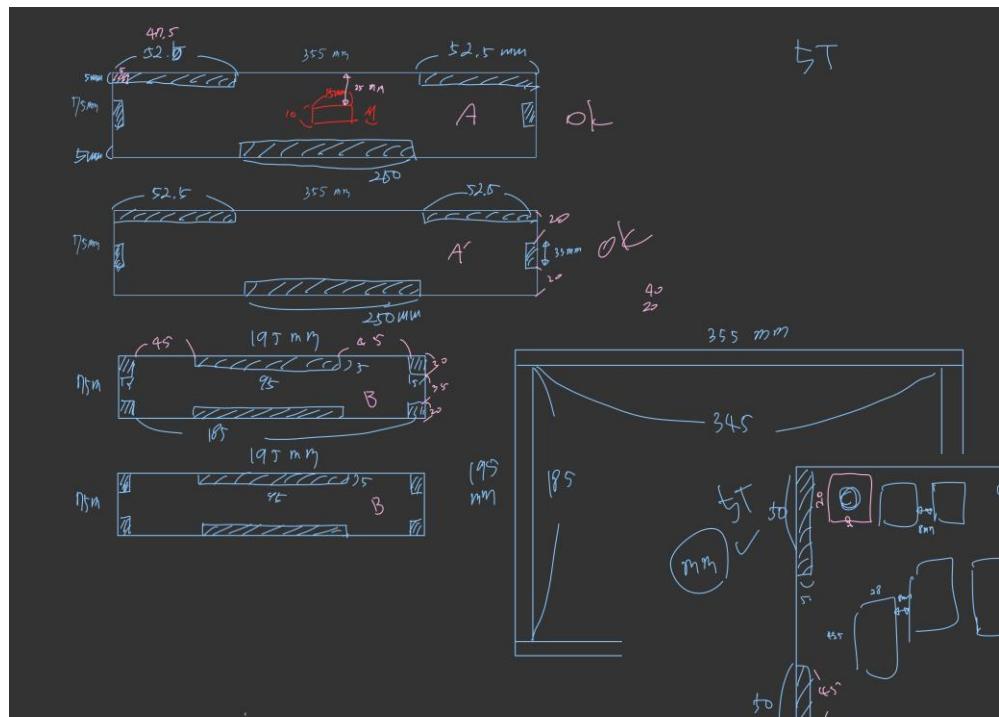
A+을 노리는 팀원에게 나는 몇 번이고 죽는다

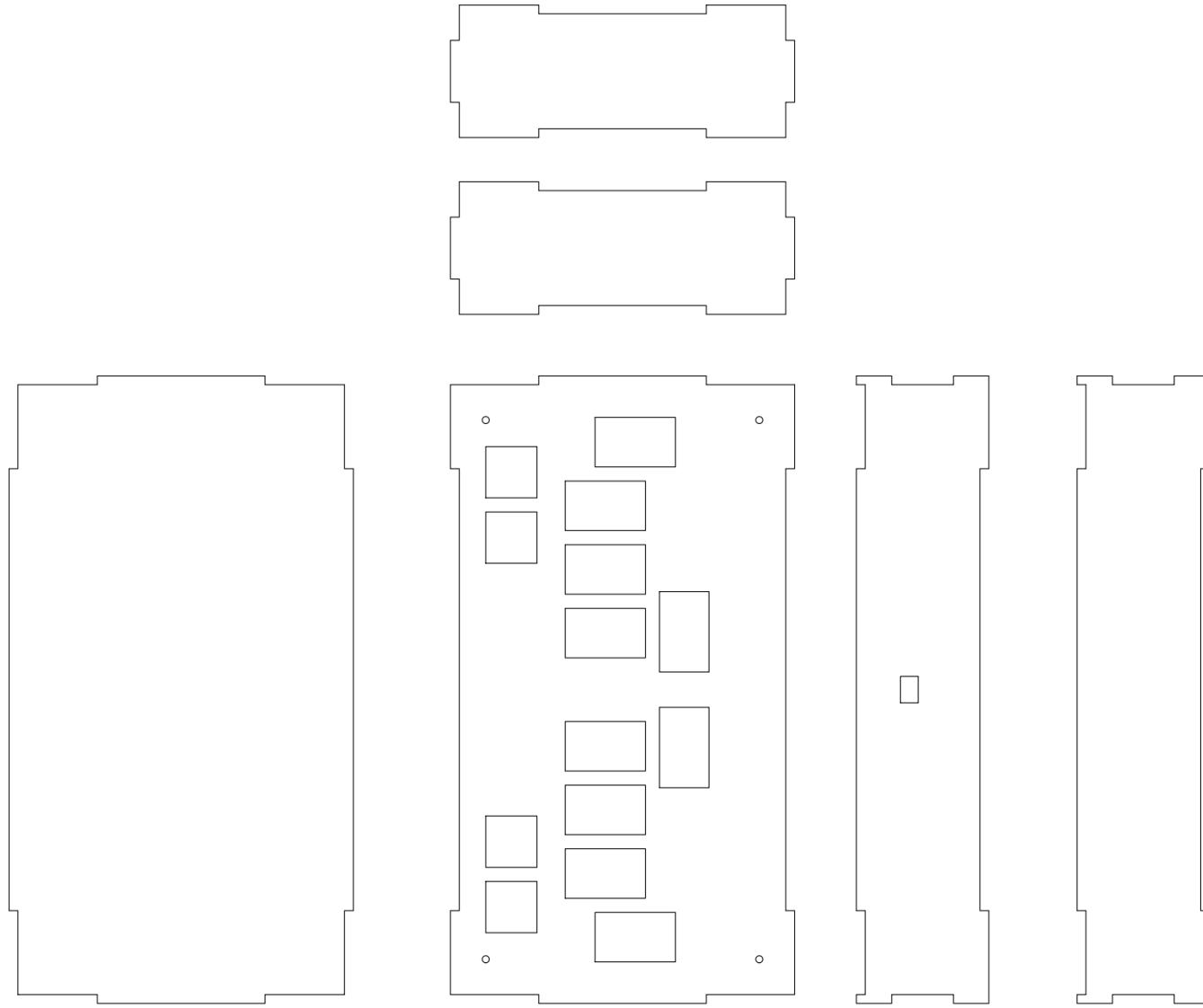


2. 작품설명 / 구조



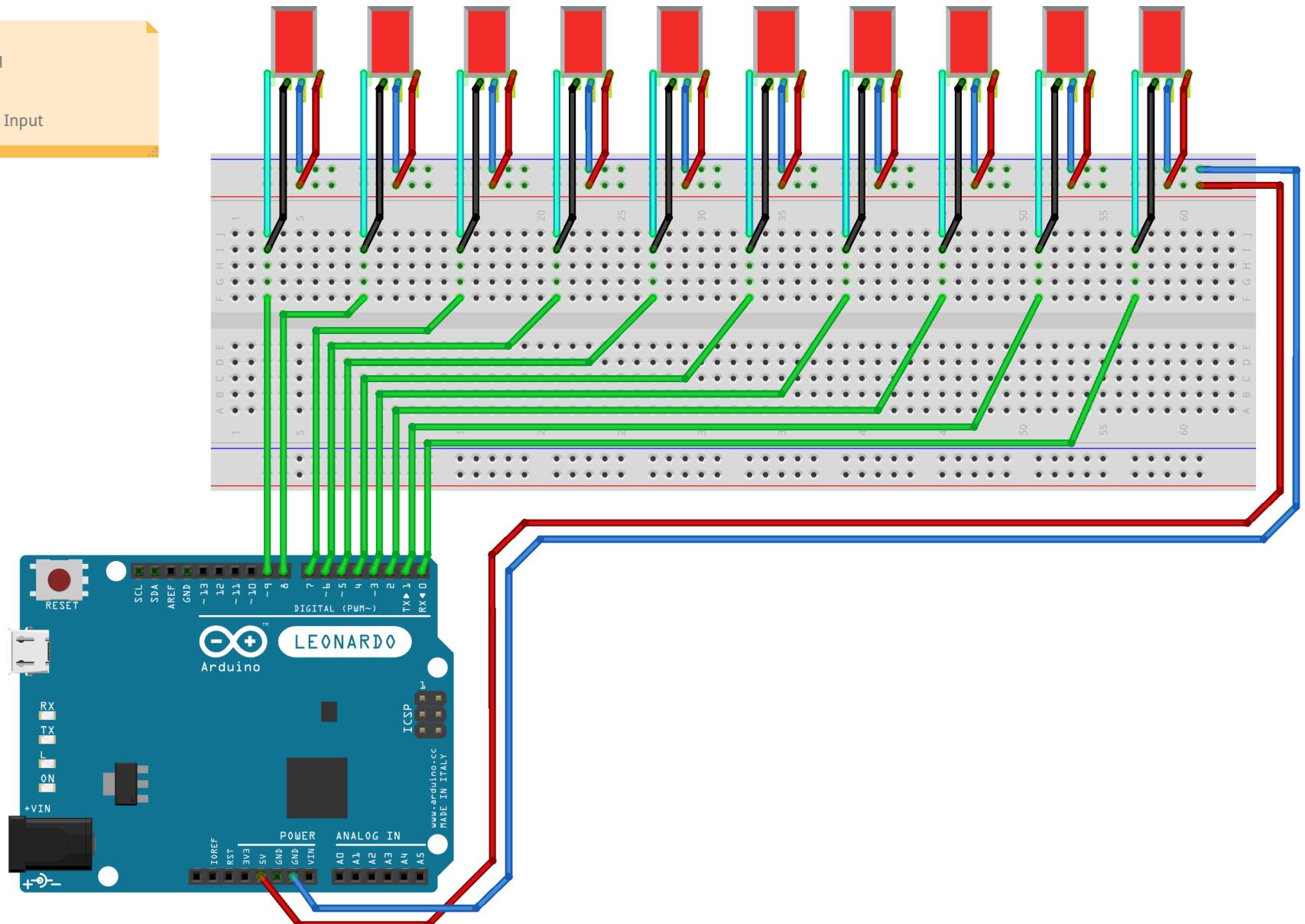
3.HW 파트 / 스케치





3.HW 파트 / 개요

Cyan: LED-
Black: COM
Blue: NO
Red: LED+
Green: Key Input



3.HW 파트 / 데이터 시트를 찾아서

거성ENG Micro S... 1/8페이지

24. 10. 15. 오전 2:24 Micro Switch V형

Micro Switch V형

일반정보 生산품 현황 및 종류 구조 및 성능 사용법 제품별 규격

일반정보

■ 전기적인 주의사항 Electrical care - Refer to homepage for detailed

특징		용도
	<ul style="list-style-type: none">- 미소부하 0.1A 부터 최대 21A 까지 개폐 가능한 스위치- 적재저소에 따른 다양한 Actuator와 접촉 형식- 각종 자동화 기기는 물론 가전 제품용에도 적합- 종래의 V형을 완전히 개선하여 사용이 편리- UL, cUL(CSA), VDE, ENEC, EK, TUV, KC, CQC 인증- RoHS, REACH 적용	<ul style="list-style-type: none">- 전자레인지, 세탁기- 전기밥솥, 게임기- 통신기기, 의료기기- 소형 가전제품 등

■ 형명분류 Nomenclature Breakdown

GSM-V	1	6	1	1	A	2
RATING (정격)	ACTUATOR (액추에이터)	CONTACT CONFIGURATION (접촉형식)	TERMINAL (단자)	OF (동작력)		
21:21A 16:16A 11:11A 6:6A 3:3A 03:0.3A 01:0.1A	0 : 핀누를 버튼 (Pin plunger) 1 : 헌지 스트 레버 (Short hinge lever) 2 : 헌지 레버 (Hinge lever) 3 : 헌지 롱 레버 (Long hinge lever) 4 : 헌지 모리버 (Simulated hinge lever) 5 : 헌지 롤러 스트 레버 (Short hinge roller lever) 6 : 헌지 롤러 레버 (Hinge roller lever) 18 : 헌지 스텝 레버 (Stepped hinge lever)	1: S.P.D.T (1c) 단극 방부정 2: S.P.S.T-NC (1b) 상시 끼로정 3: S.P.S.T-NO (1a) 상시 개로정	A : Solder or # 187 tab B : #187 tab C : #250 tab	4:400g 3:300g 2:200g 1:120g 06:50g 03:30g		

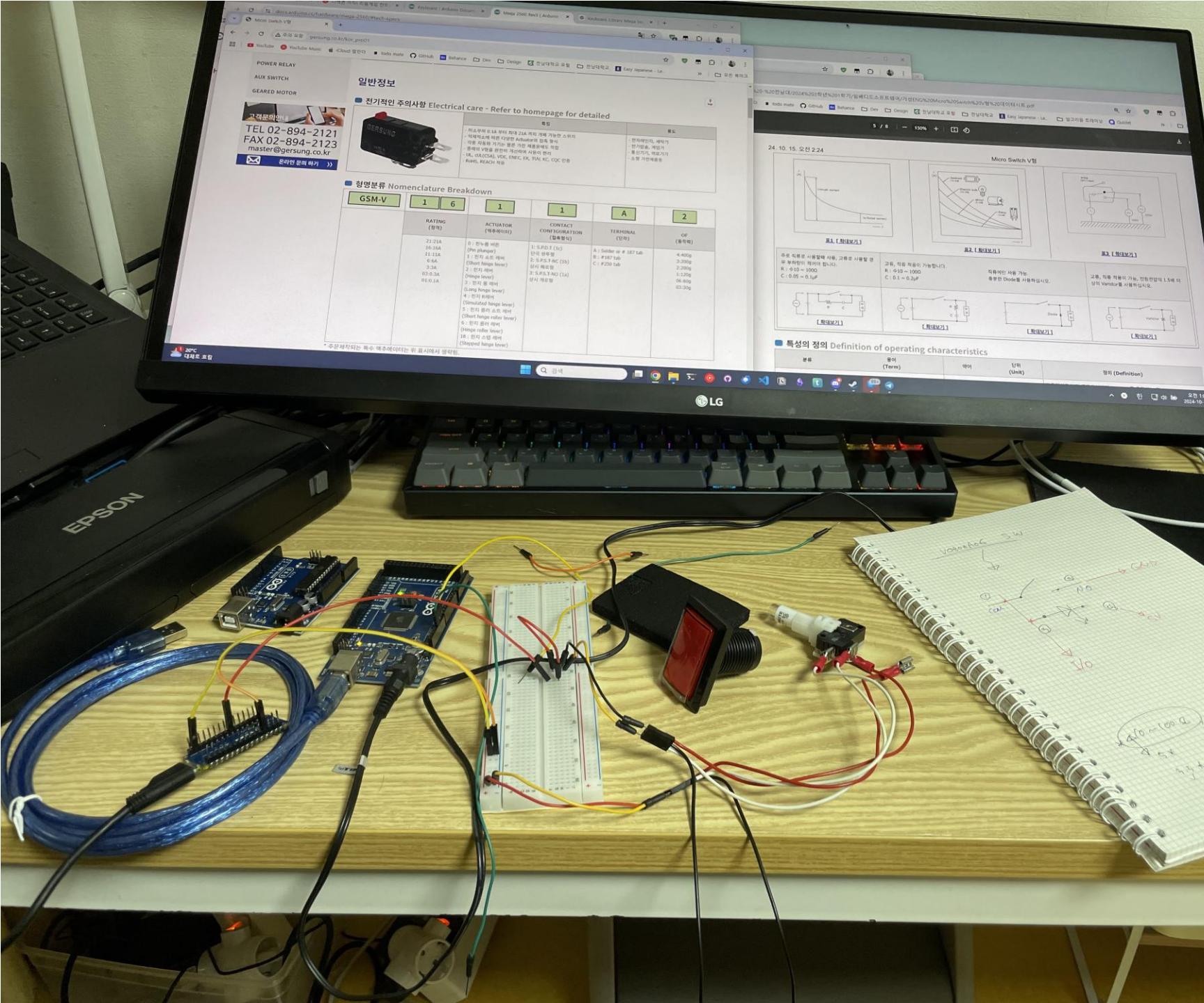
* 주문제작되는 특수 액추에이터는 위 표시에서 생략됨.

생산품 현황 및 종류

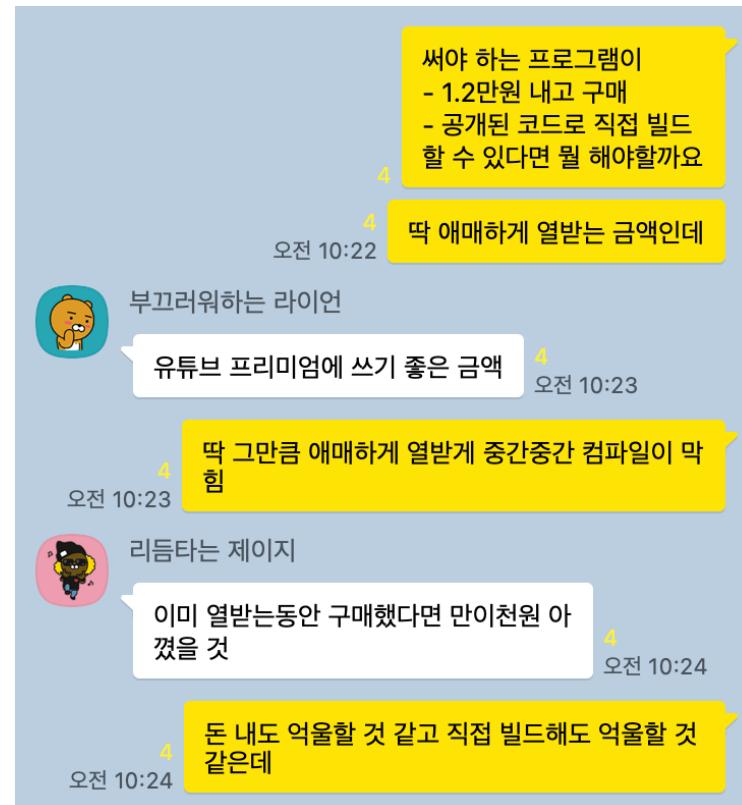
■ 마이크로 스위치 생산품 현황표 Micro Switch Product Status

형명	정격	접촉형식		단자종류			동작력					
		단극방부	상시폐로	상시개로	A	B	C	30g	60g	120g	200g	300g
구조형	21A 250V AC	○	○	○		○			○	○	○	○
	16A 250V AC	●	●	●	●	○	○	○	●	●	●	●
	11A 250V AC	●	●	●	●	○	○	○	●	●	●	●
	KA 250V AC	●	●	●	●	○	○	●	●	●	●	●

3.HW 파트 / 회로 구조 이해하기



3.HW 파트 / Fritzing은 회로도 후원하지 않으면 설치할 수 없는 오픈소스 프로그램입니다



가이드가 불친절해서
빌드 스크립트 읽어가며 macOS 빌드 컴파일
... Windows 빌드도 컴파일해야하는데..
결국 시간을 돈으로 샀습니다

1. Building Fritzing
Kjell edited this page on Apr 29 · 39 revisions

Getting started

If you have never worked with Qt before, we highly recommend their tutorials: <https://doc.qt.io/qt-6/qtexamplesandtutorials.html>

Try to open and build some of the example projects, and maybe even creating a mini project from scratch.

Download and install Qt and Qt Creator

Download and install the Qt open source edition from the [Qt software download page](#). We are always trying to use the latest version of Qt. For the exact Qt version, please check the file phoenix.pro (Qt 6.5.3 at time of writing this)

You will need

- Qt Creator
- Qt Desktop
- Qt Sources
- Qt 5 Compatibility Module
- Qt Debug Information Files

Install system dependencies

Clone this wiki locally
<https://github.com/fritzing/fritzing>

- 1. Building Fritzing
 - i. Mac notes
 - ii. Windows notes
 - iii. Linux notes
 - iv. Building Qt from Source
- 2. Developer Guide
 - i. Part file format
 - ii. Sketch file format
 - iii. Adding a platform to Code View
 - iv. Coding style
 - v. Adding language translations
- 3. Command Line Options
 - i. Running fritzing as a server

3.HW 파트 / 회로도



Fritzing (New) Parts Editor: Rectangle Red LED Button [Metadata View]

브레드보드 스케마틱 PCB 아이콘 Metadata 커넥터

This is where you edit the metadata for the part ...

Title Rectangle Red LED E
날짜 Wed Oct 30 2024
작성자 Jonghyeon Park <sh>

설명 Arcade LED Button for Rhythm Game (CWB 405)
The CWB 405 button consists of a button, a switch, and an LED that can be separated.
The button part presses a switch, so only the switch and LED pins are supported.
It was written based on the 405 button set produced by IST (istmall.co.kr).
- LED: 5V DC

라벨
URL
Family CWB 405
Variant variant 1

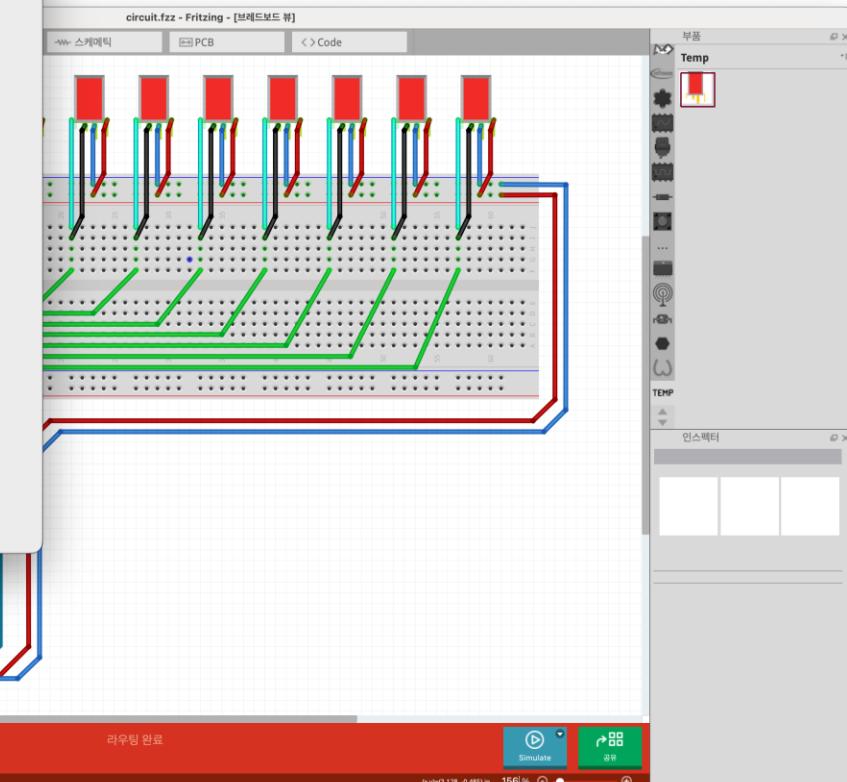
속성 color red
layer
mn
mpn
part number
라벨

태그 arcade
rhythm-game
라벨

fritzing

노트 추가 외전 편집기 라우팅 원료

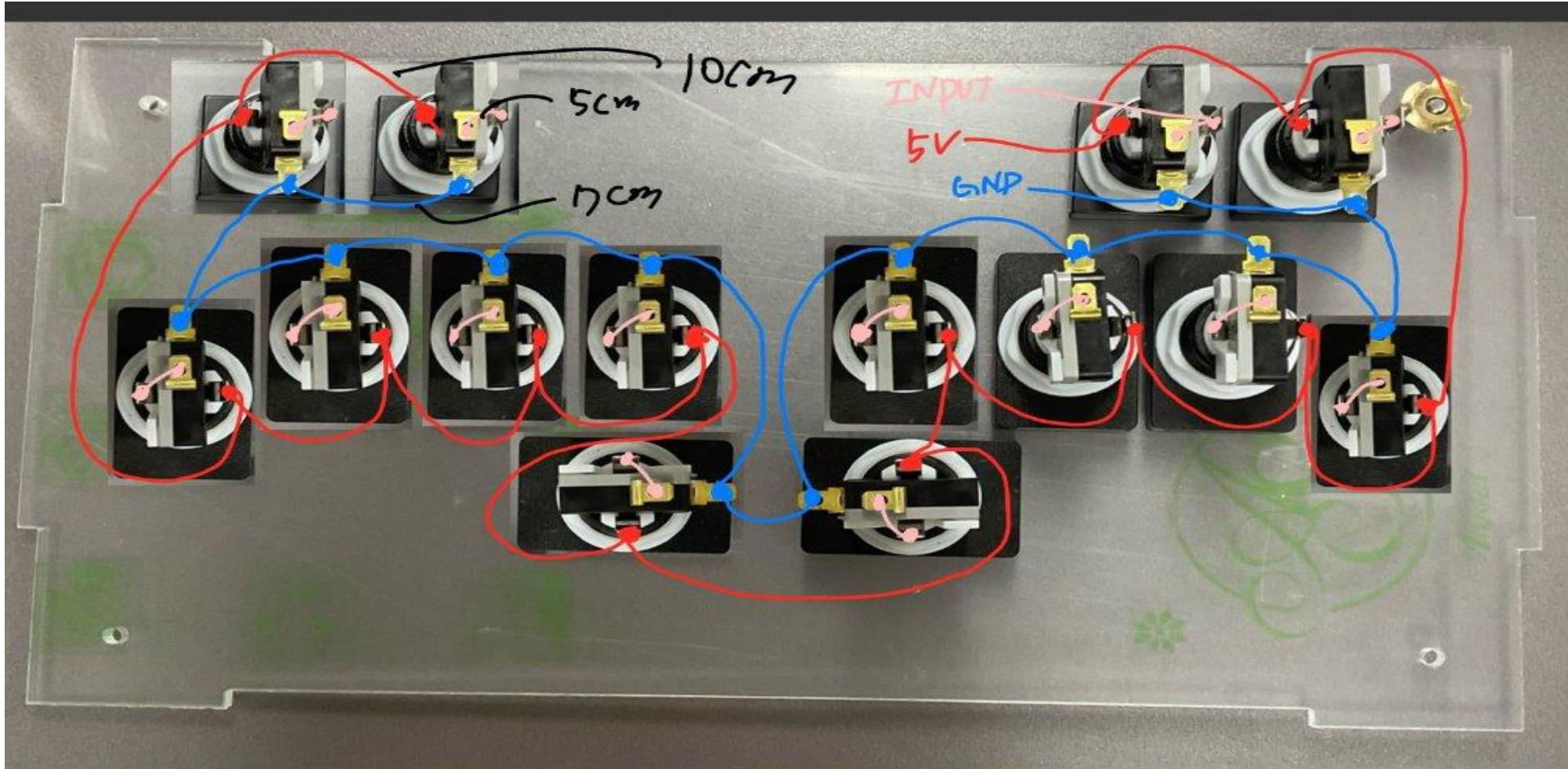
(x,y)=(0.128,-0.483) in 156% ○ +



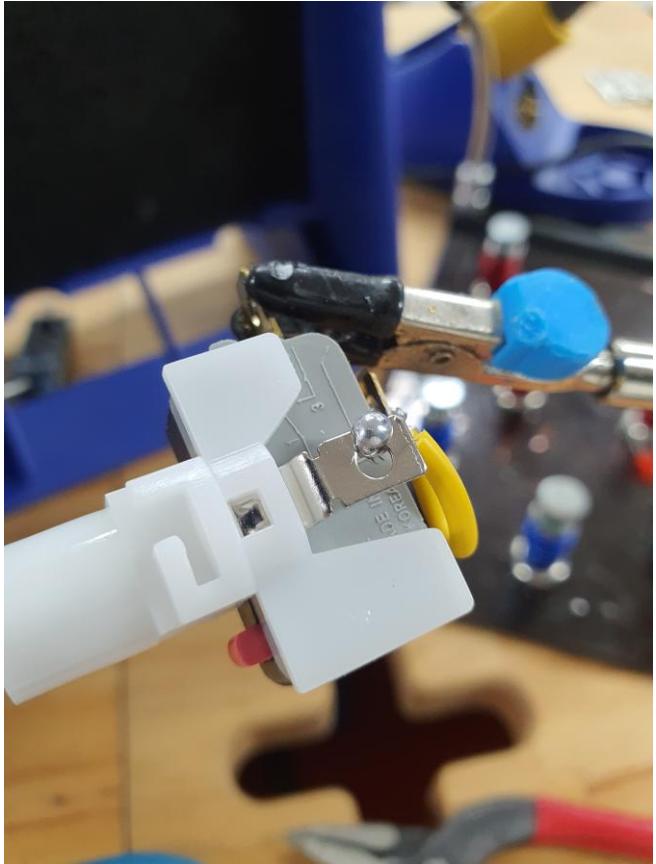
상판작업

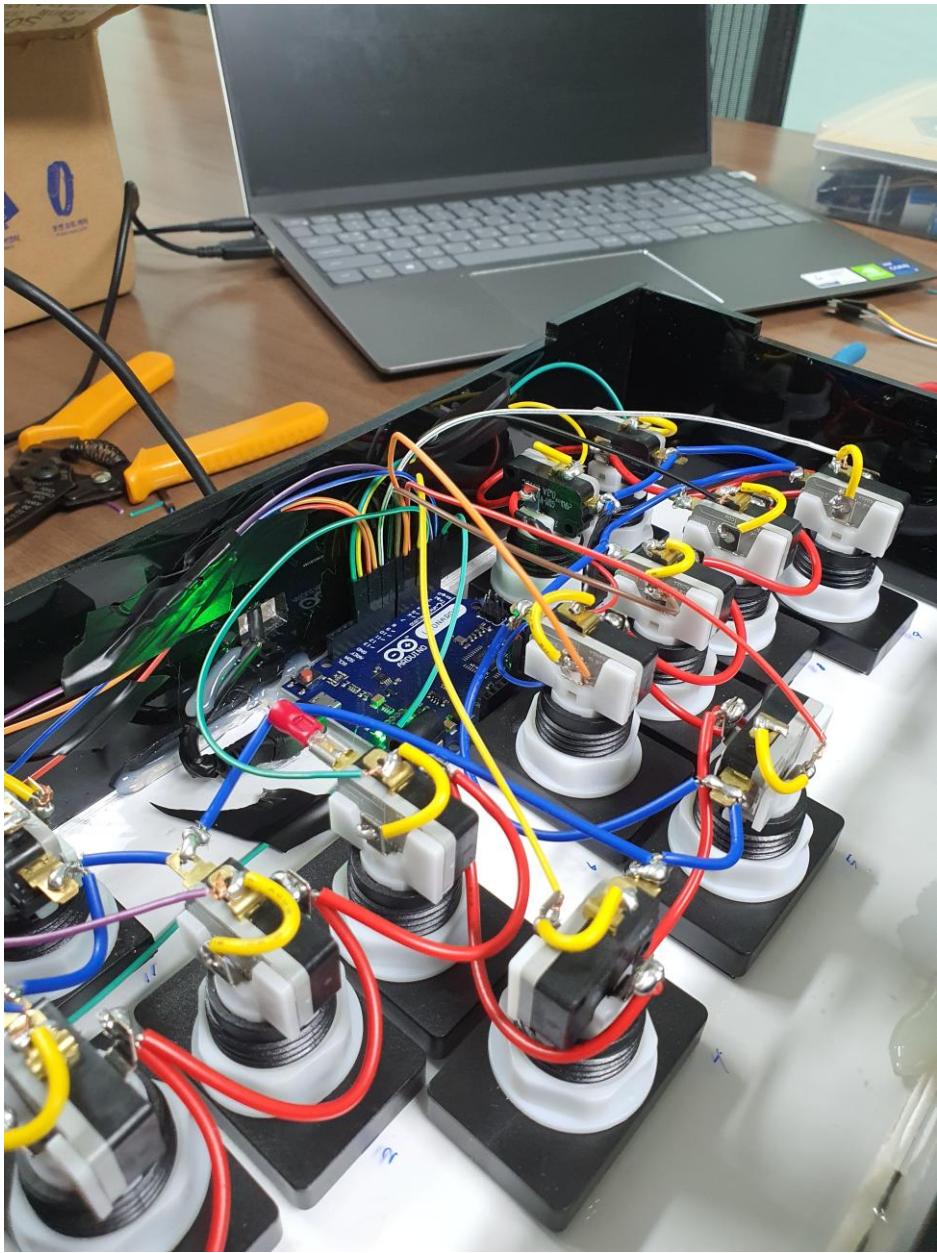
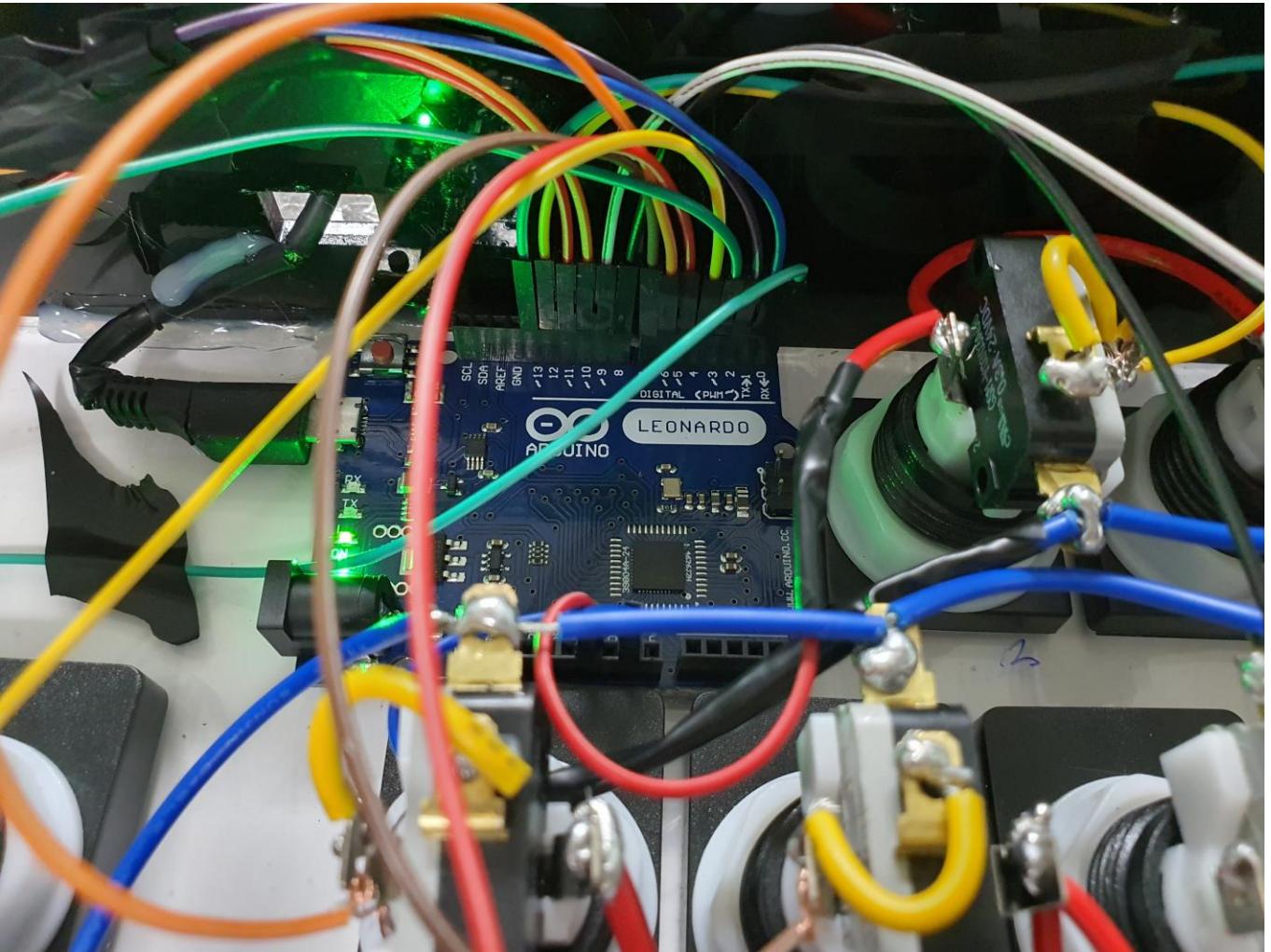


라인 스케치

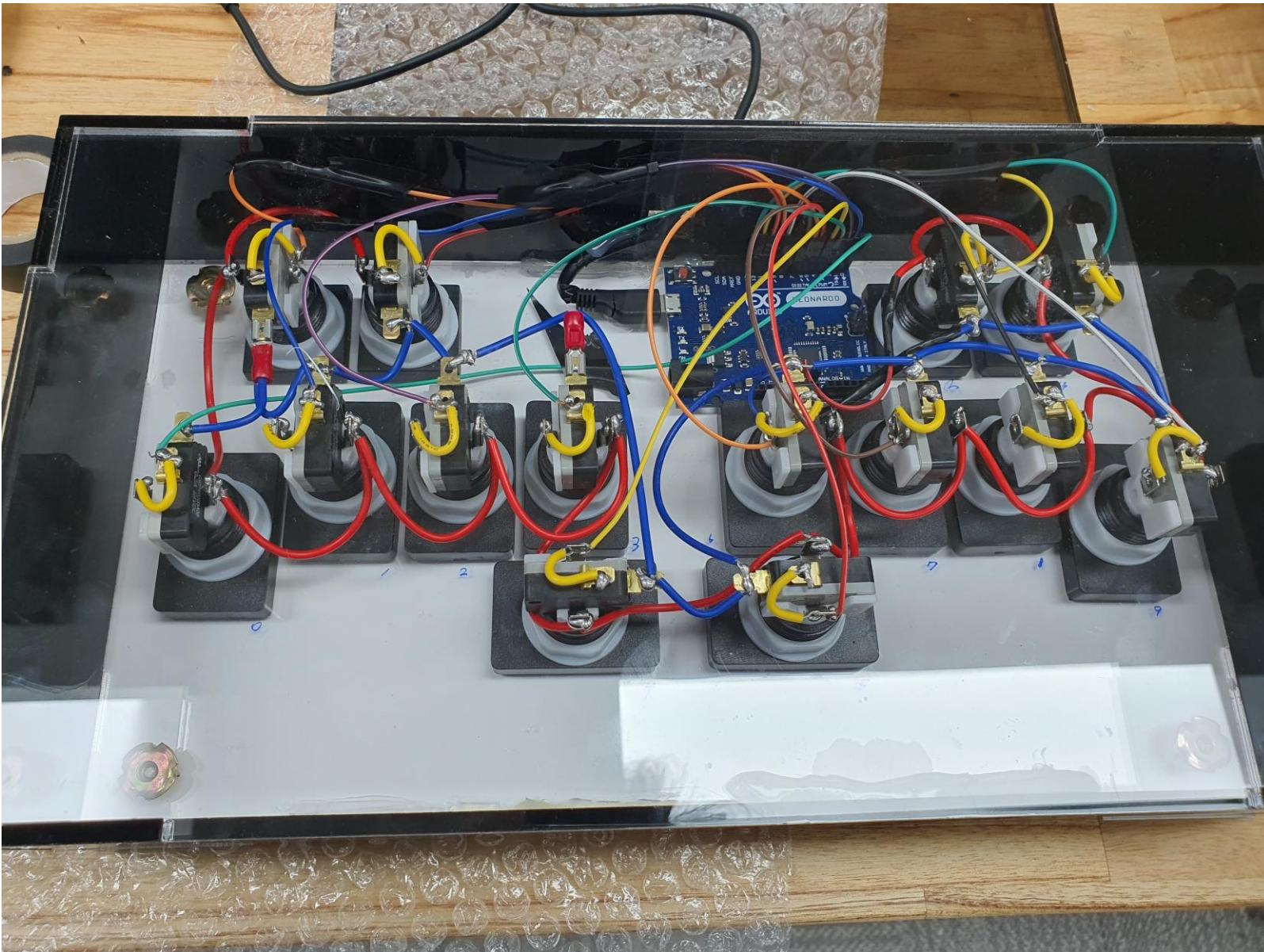


스위치와 LED연결 + 납땜 + 버튼결합

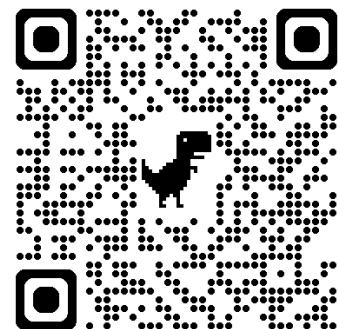
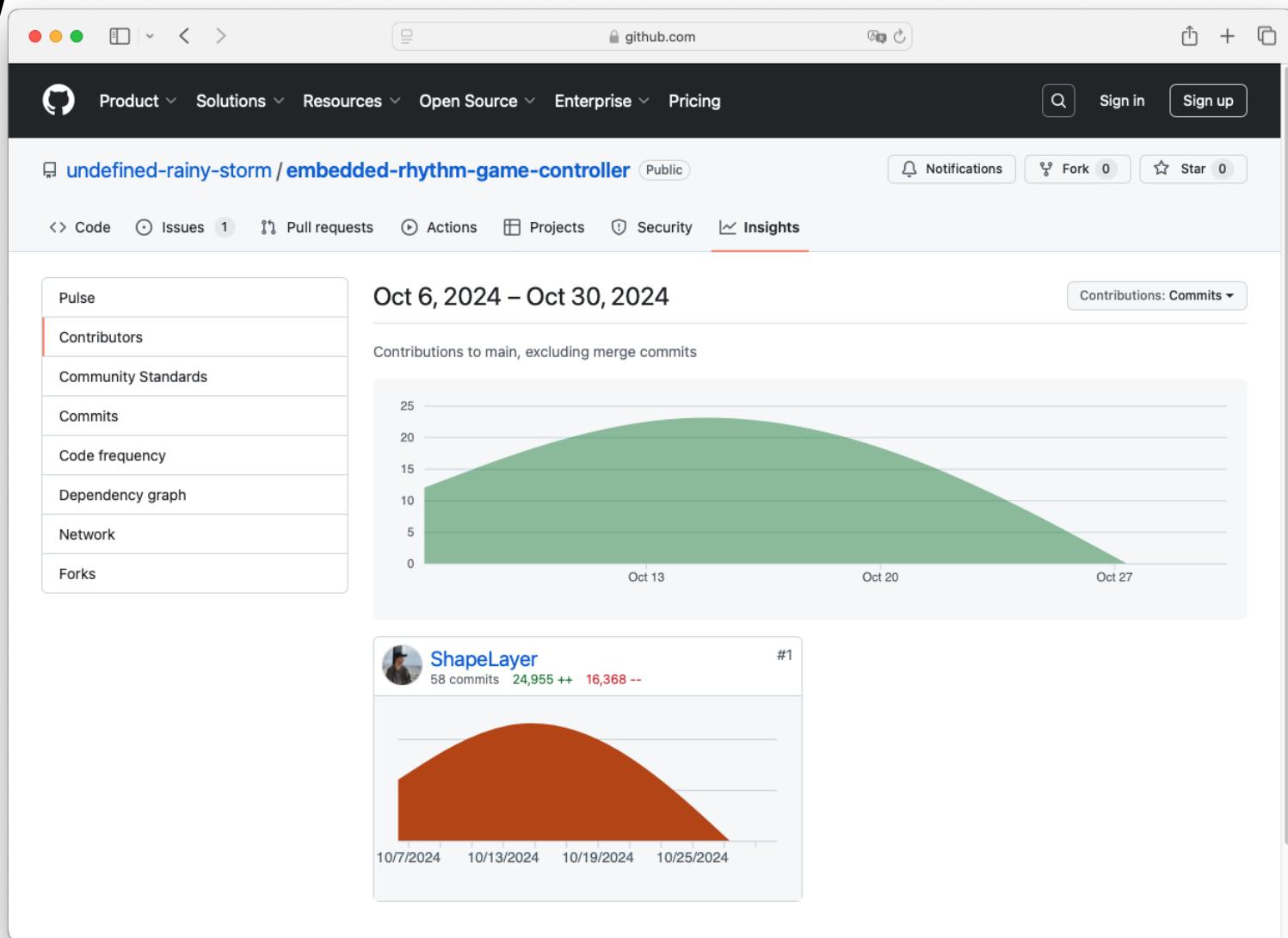




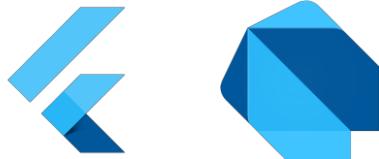
하판



3.SW 파트 / 개요



3.SW 파트 / 키매핑 프로그램



The screenshots show the 'configurator' application interface for mapping keys on a Rhythm Game Controller. The top bar indicates it's a 'DEBUG' build.

Device Port section (left screenshot):

- Debug console: (/dev/cu.debug-console) debug-console (selected, highlighted in light gray)
- wlan-debug: (/dev/cu.wlan-debug) wlan-debug
- BeatsStudioPro: (/dev/cu.BeatsStudioPro) BeatsStudioPro
- Bluetooth-Incoming-Port: (/dev/cu.Bluetooth-Incoming-Port) Bluetooth-Incoming-Port

Tune Keys section (right screenshot):

- Tune Left Side: Off (gray switch)
- Tune Left #1: On (purple switch)
- Tune Left #2: On (purple switch)
- Tune Left #3: On (purple switch)
- Tune Left #4: On (purple switch)
- Tune Right #4: On (purple switch)
- Tune Right #3: On (purple switch)

Buttons at the bottom right of the right screenshot:

- (select)
- Save
- Revert

3.SW 파트 / 컨트롤러



The screenshot shows the Visual Studio Code interface with an Arduino project open. The project structure is as follows:

- controller**:
 - README.md
 - .gitignore
 - button.h
 - config.h
 - const.h
 - controller.ino
 - default.h
 - flags.h
 - global.cpp
 - global.h
 - handlers.cpp
 - handlers.h
 - keyboard_handler.cpp
 - keyboard_handler.h
 - keymap.cpp
 - keymap.h
 - magic.h
 - pin.h
 - requirements.sh
 - utils.cpp
 - utils.h
- controller_test**:
 - build
 - .gitignore
 - CMakeLists.txt
 - keymap_test.cc
 - README.md
 - test.cc
 - utils_test.cc
- controller_verify**:
 - controller_verify.ino
 - README.md
 - .gitignore
 - README.md

The **controller.ino** file is the active editor tab, displaying C++ code for an Arduino sketch. The code includes includes for config.h, utils.h, magic.h, global.h, const.h, pin.h, and handlers.h. It defines constants for handshake requests and responses, initializes Serial communication at a specific speed, and handles button state tracing and serial communication. The **PROBLEMS** tab shows a sync error: "Syncing files to device macOS...". The **TERMINAL** tab shows a Flutter run key commands prompt.

3.SW 파트 / 컨트롤러

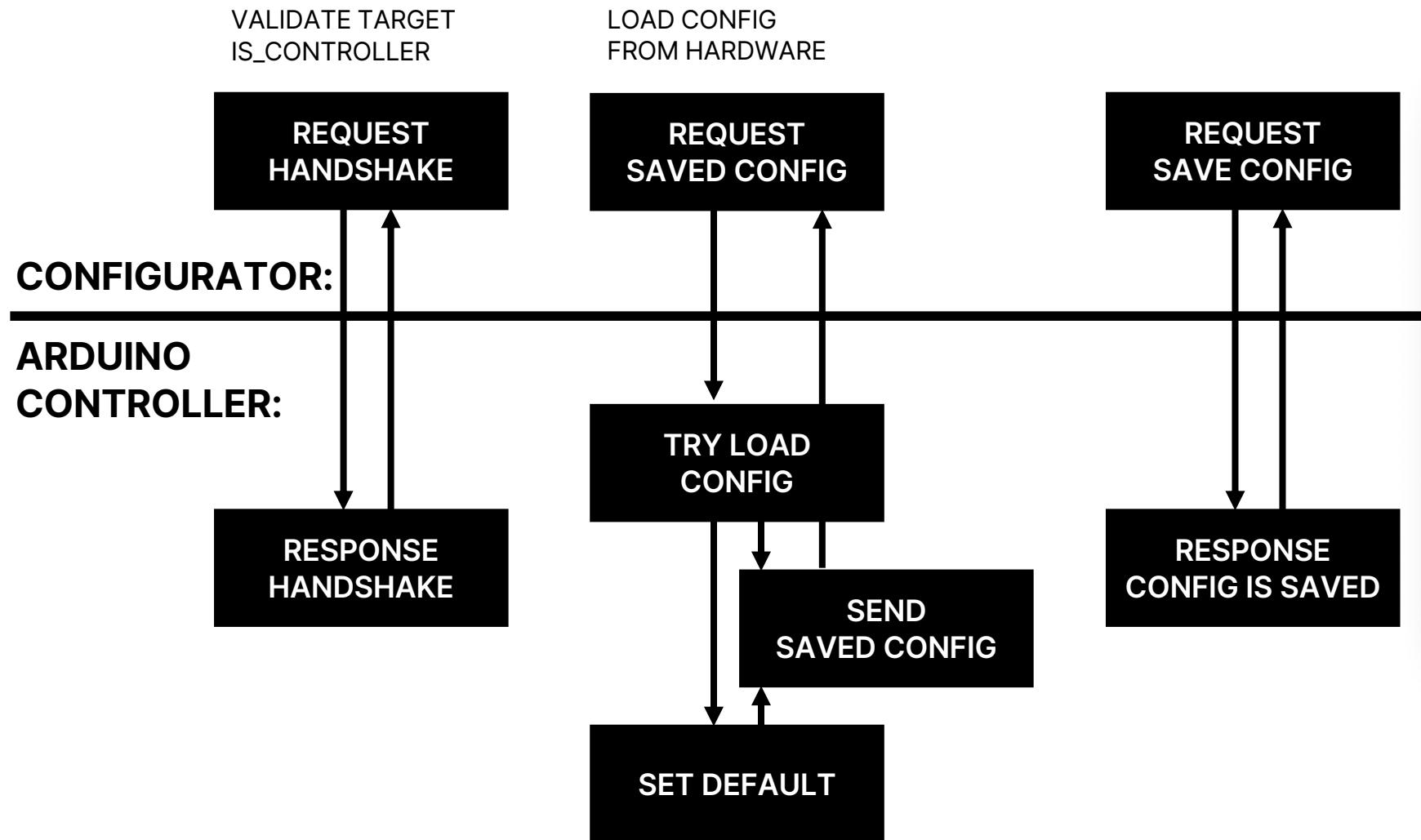


The screenshot shows a GitHub Actions workflow page for a pull request titled "feat: add save request to configurator side #35". The workflow is named "Test Controller Code". It consists of five steps:

- Set up job (1s)
- Run actions/checkout@v4 (1s)
- Build and Run Test (10s)
- Post Run actions/checkout@v4 (0s)
- Complete job (1s)

The workflow status is "succeeded 2 days ago in 13s".

3.SW 파트 / 키매핑 프로그램 – 컨트롤러 통신



```
#ifndef MAGIC
#define MAGIC

#define MAGIC_LENGTH 9
#define KEYMAP_LENGTH 28

#define HANDSHAKE_REQUEST { 0x2e, 0x68, 0x73 }
#define HANDSHAKE_RESPONSE { 0x2e, 0x68, 0x73 }

#define LOAD_KEY_CONFIG_REQUEST { 0x2e, 0x6b, 0x73 }
#define LOAD_KEY_CONFIG_RESPONSE { 0x2e, 0x6b, 0x73 }

#define SET_KEY_CONFIG_REQUEST { 0x2e, 0x73, 0x6b }
#define SET_KEY_CONFIG_REQUEST_INCOMPLETE \
{ 0x2e, 0x73, 0x6b, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00 }
#define SET_KEY_CONFIG_RESPONSE { 0x2e, 0x73, 0x6b }
```

Q&A