

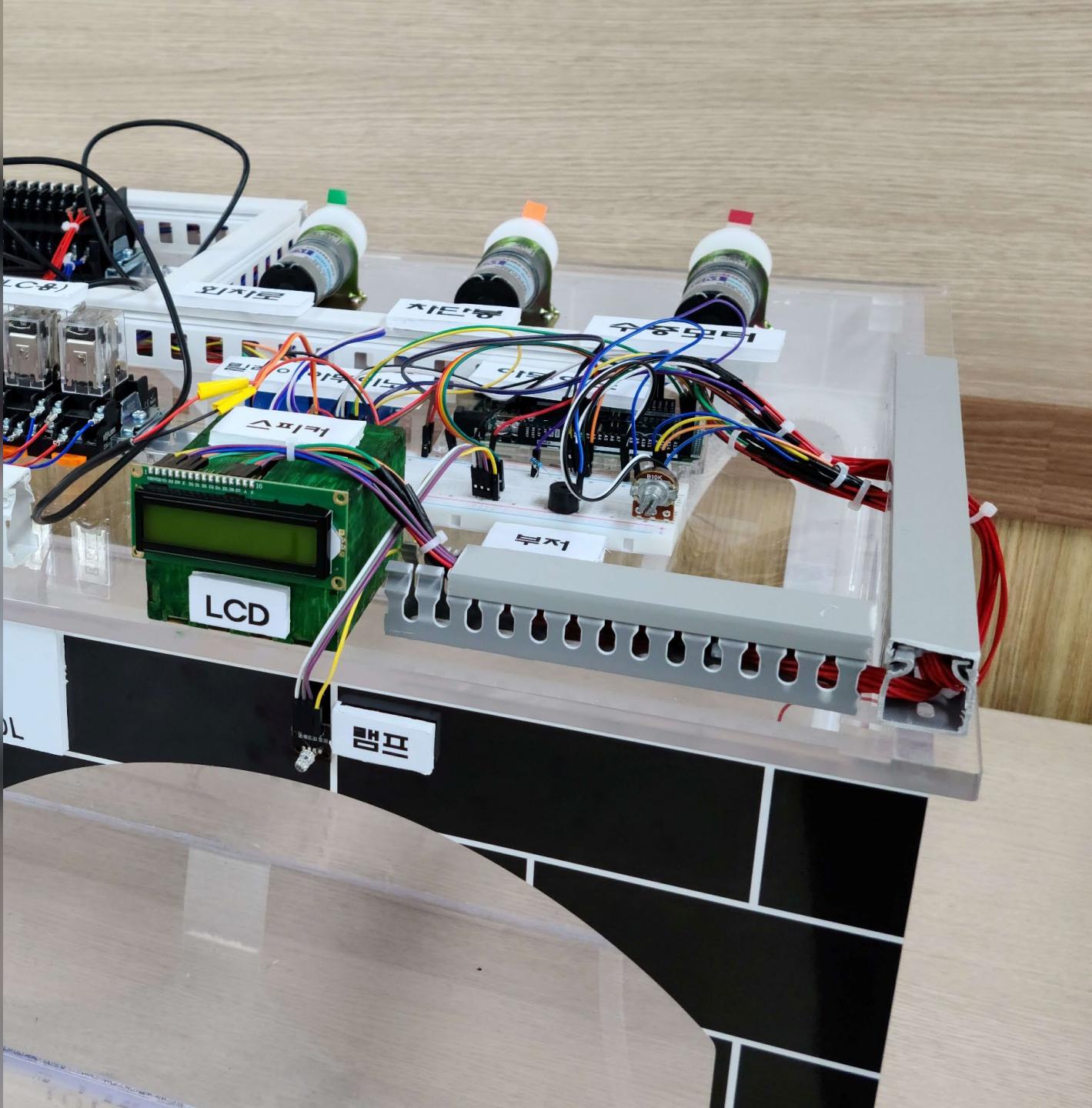
Floodian

수원공업고등학교

전기융합제어과&스마트기계과

김주형, 박준형, 정민영, 최민혁, 표승원

2023 K-tech 아이디어 챌린지





목차



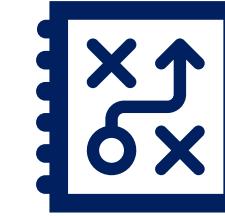
목차

팀 소개





목차



팀 소개

제작 과정





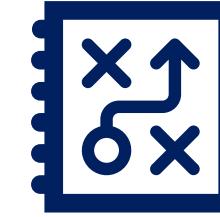
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팀 소개



제작 과정



동작 설명





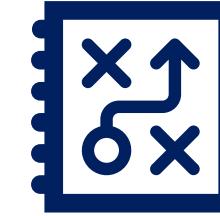
목차



팀 소개



제작 과정



동작 설명



기대 효과





민들레가 씨를 멀리 퍼트리듯
저희의 선한 영향력을 멀리 퍼트립니다



김주형

스마트 기계과로 만들레팀의 팀장이며
하드웨어와 발표를 담당하고 있다.



박준형

전기융합제어과
아두이노, PLC결선과 ppt를 담당한다.

정민영

전기용합제어과
프로그래밍과 여러 소프트웨어 담당을 한다.



최민혁

전기용합제어과
아두이노와 plc결선을 담당한다.

표승원

전기융합제어과
프로그래밍, 영상편집과 발표를 담당한다.

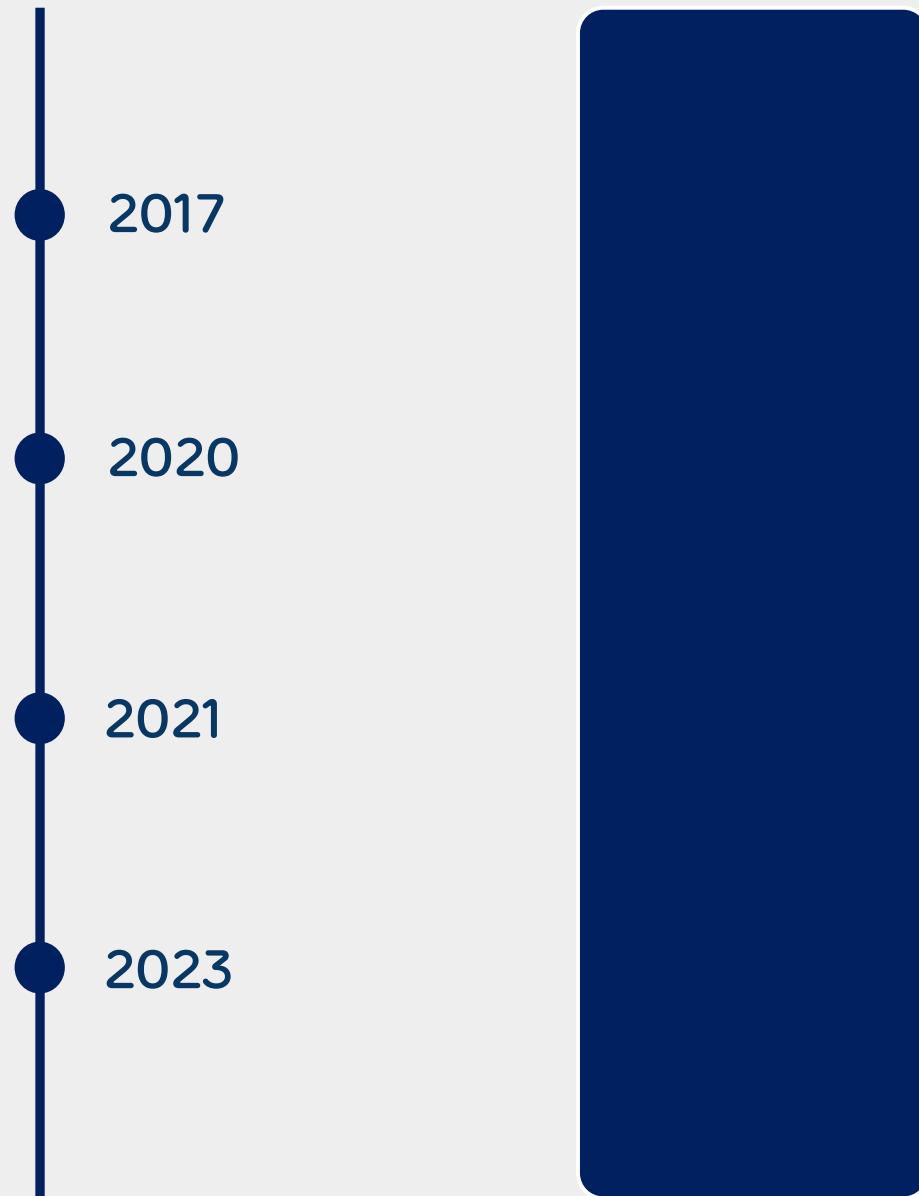




**스마트기계과
(하드웨어)**



**전기융합제어과
(소프트웨어)**



2017

'개통 4개월' 국내 최장 해저터널 침수…배수펌프 '무용지물'

2020

2021

2023



YONHAP NEWS







서울시 "진입 차단 설비 미설치 지하차도 63곳"

입력 2023-07-21 15:02 | 수정 2023-07-21 15:02



강원도 내 지하차도, 차단시설 '전무'

지하차도 자동 차단시설...전북 4곳뿐

2023.07.24 20:30

전소연 기자 입력 2023.07.25 17:04 수정 2023.07.25 17:36

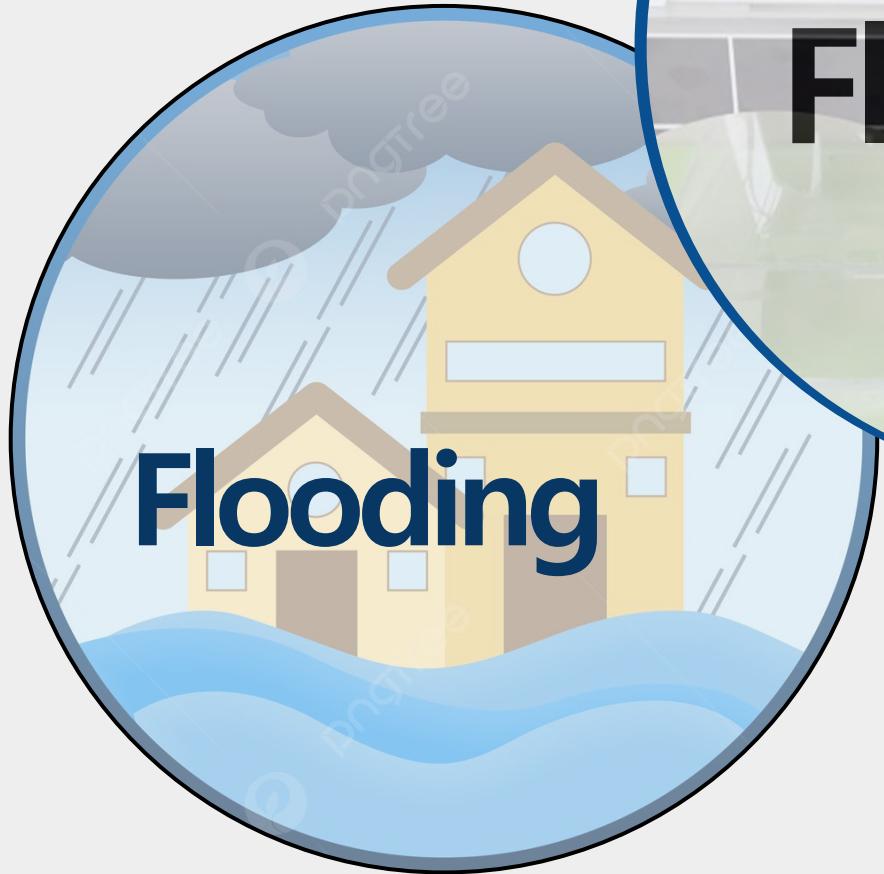
'지하차도 들어가기 겁난다'..침수 차단 시설이라도 제 때 설치됐다면



수정 2023-07-17 20:06



'침수 차단 시설' 언제?



미래유망 수업



2022 여름



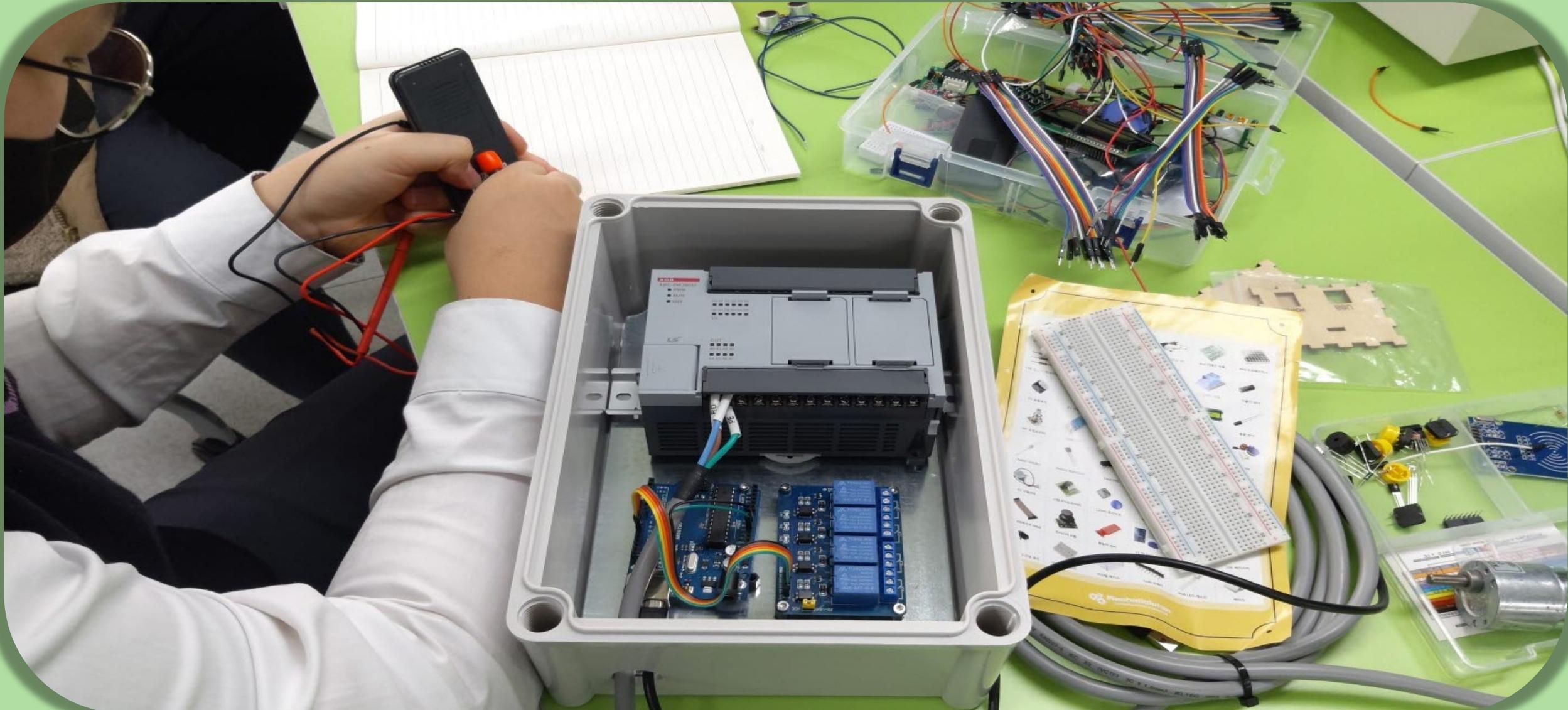
2022 여름



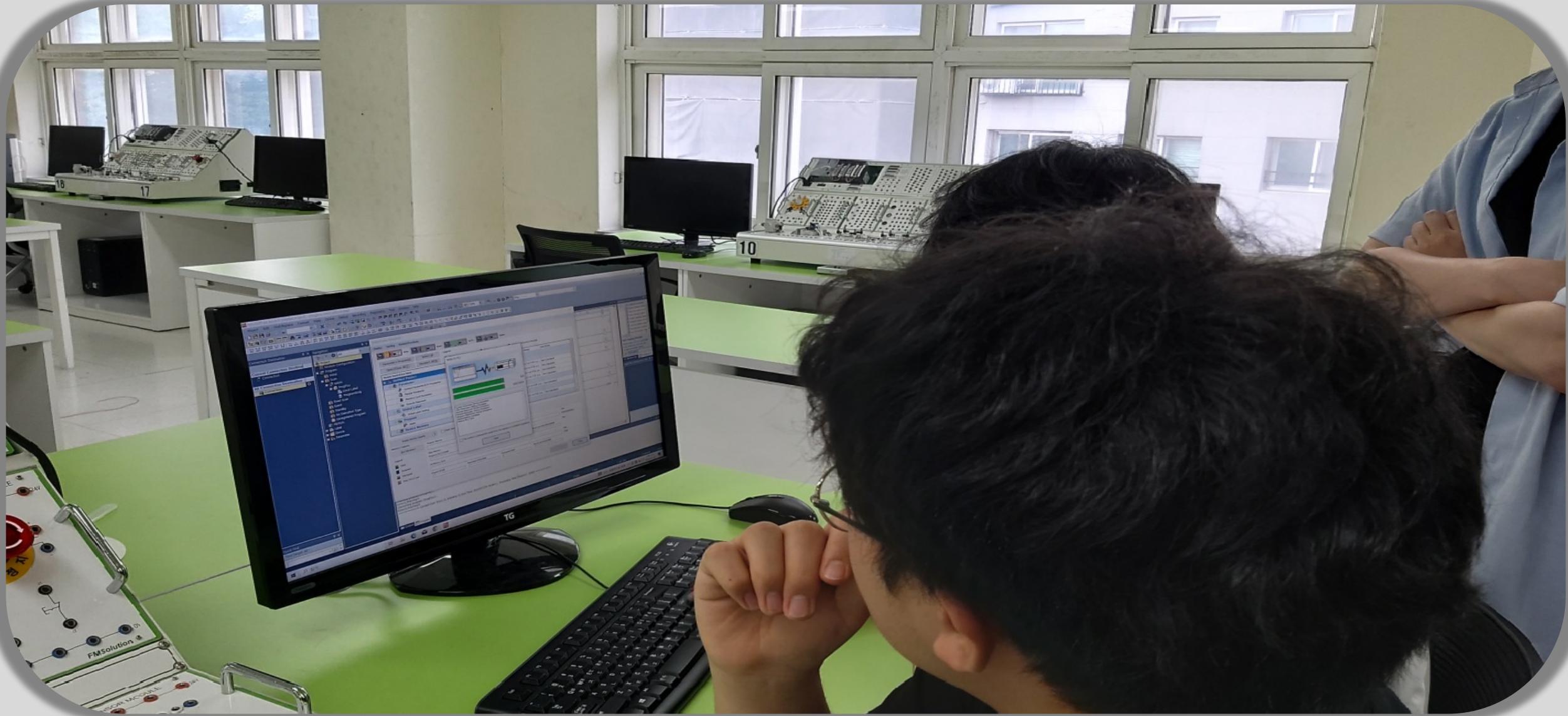
2022 겨울



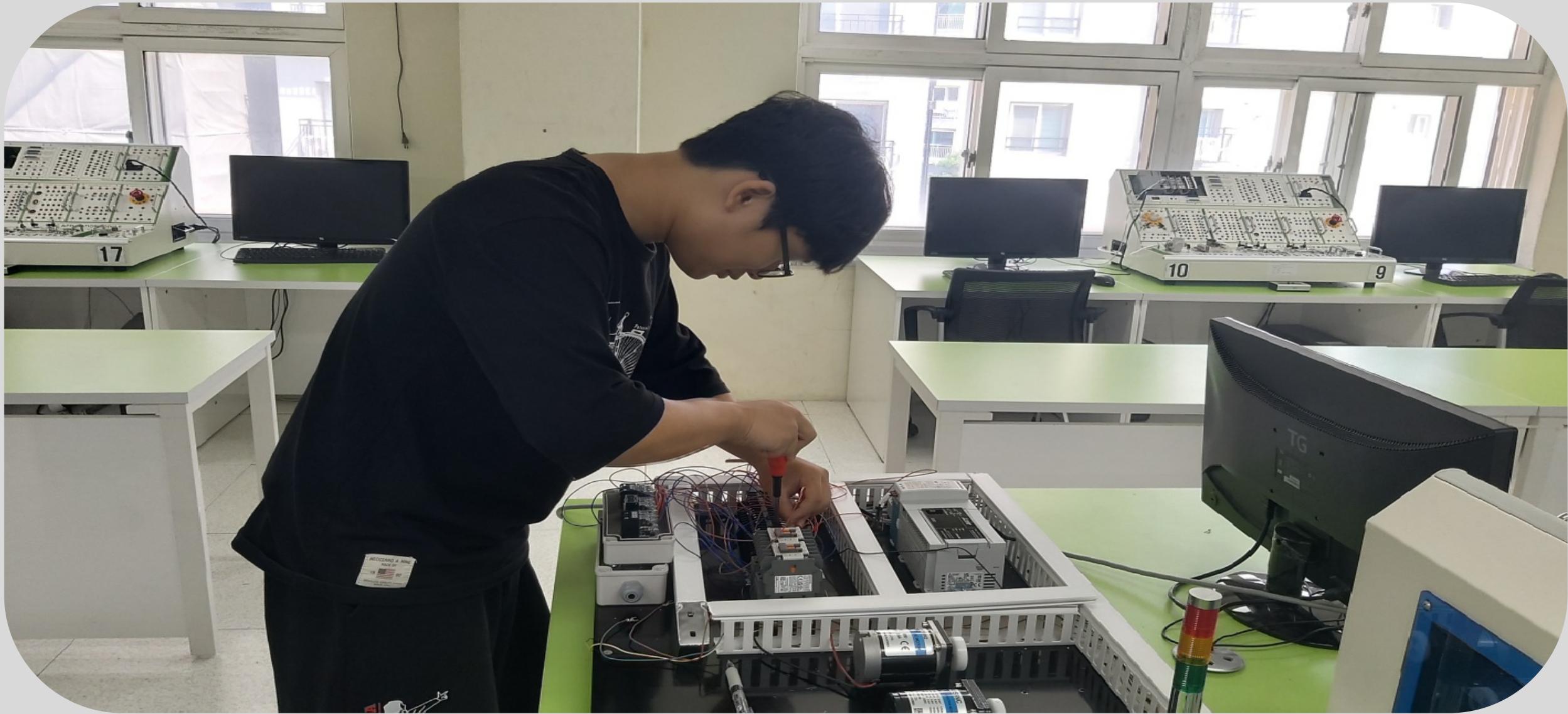
2022 겨울



2023 여름



2023 여름

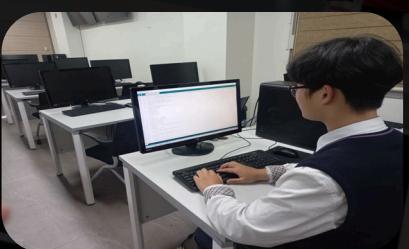
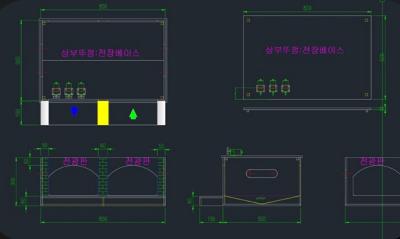


2023 여름



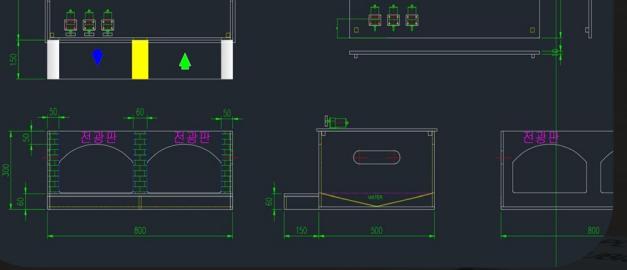
FLOODIAN

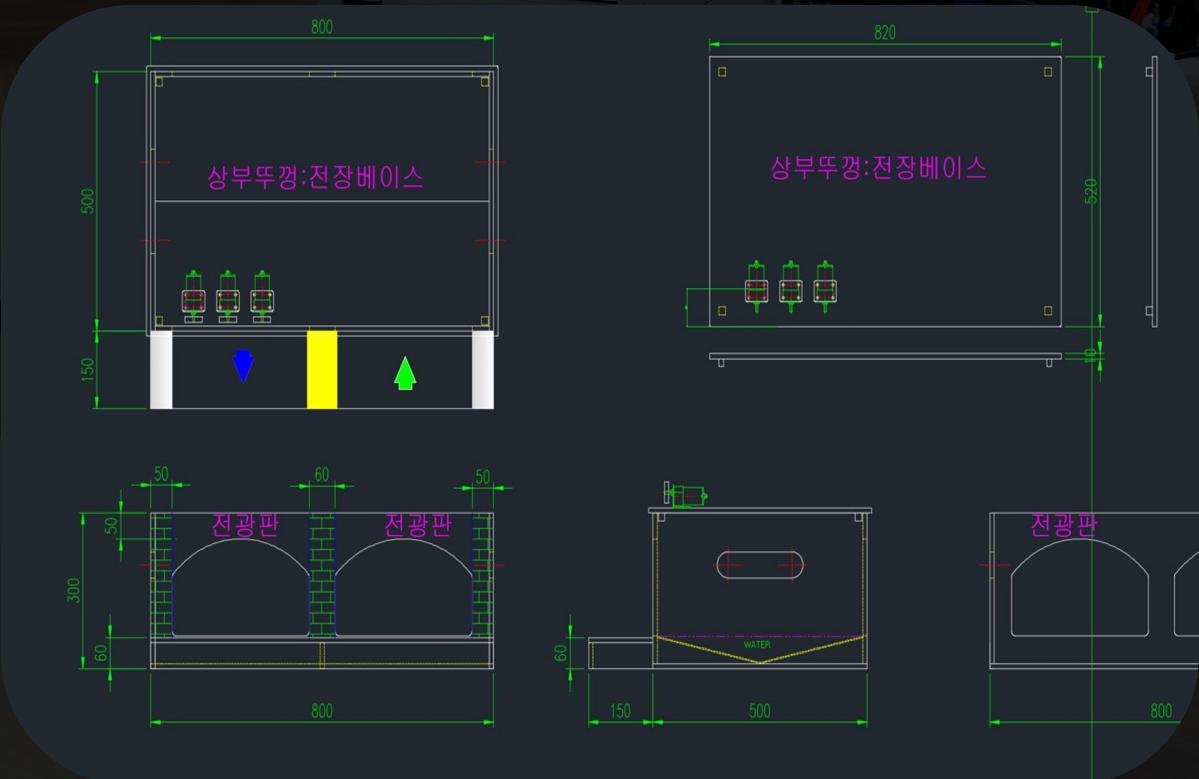
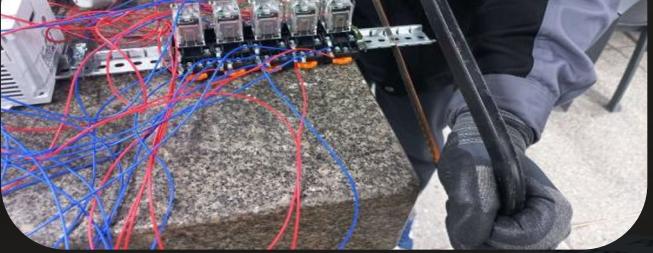
제작 과정



1. 회의

아이디어 주제 선정을 하기 위해
팀원들이 모여 회의를 한다





2. 도면

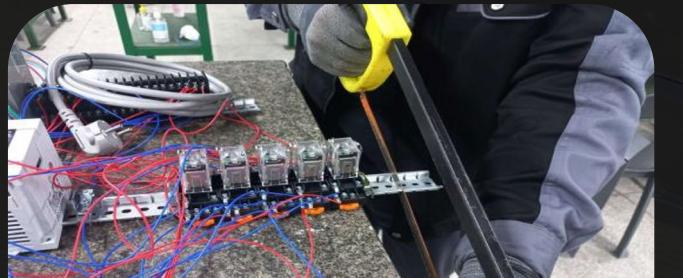
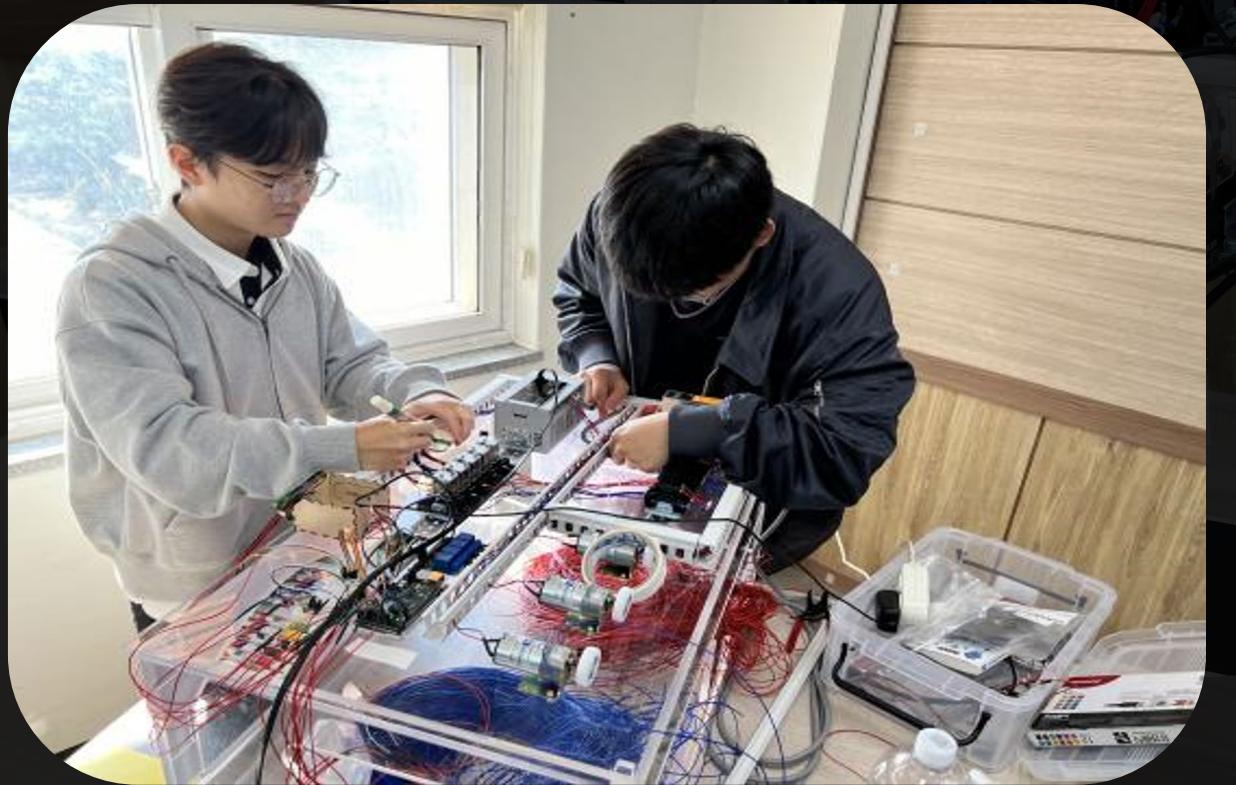
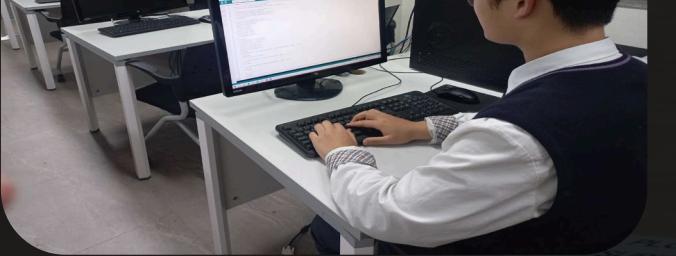
선정한 아이디어를 바탕으로
모형을 제작하기 위해 도면을 그린다





3. 제작

하드웨어에 들어갈 부품을
재단하고 조립한다

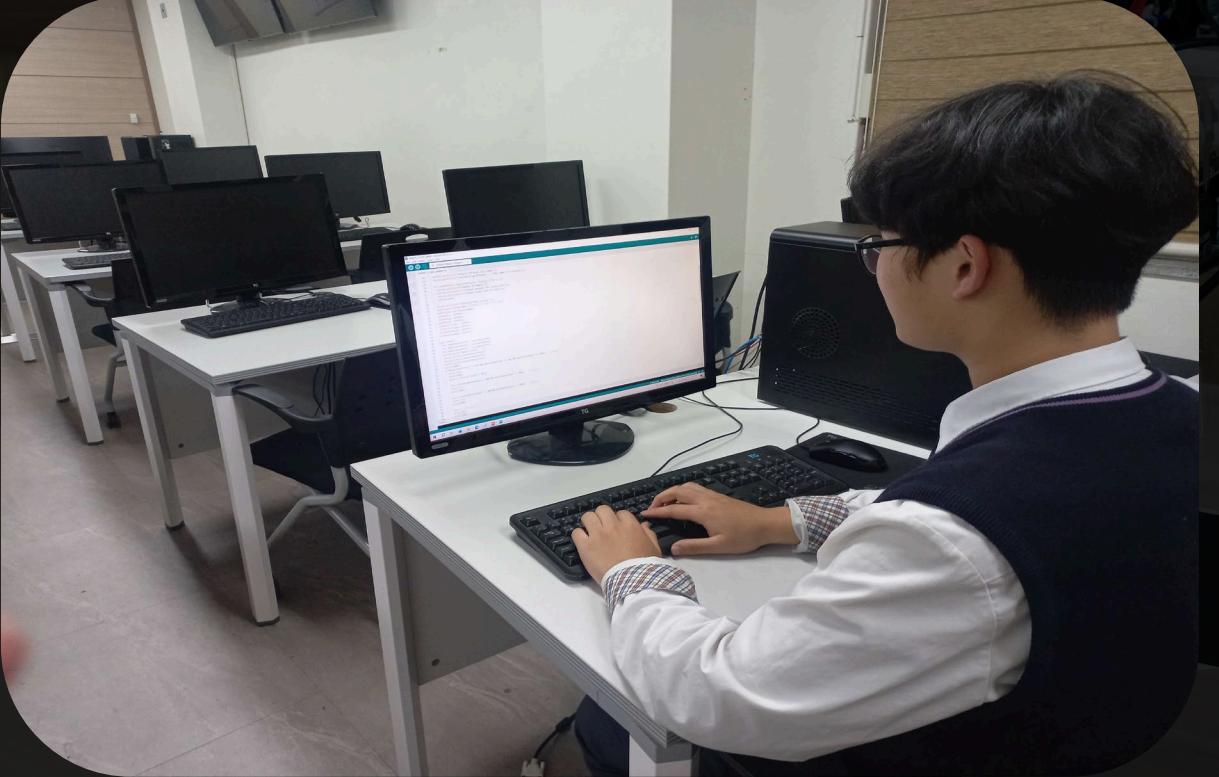


4. 결선

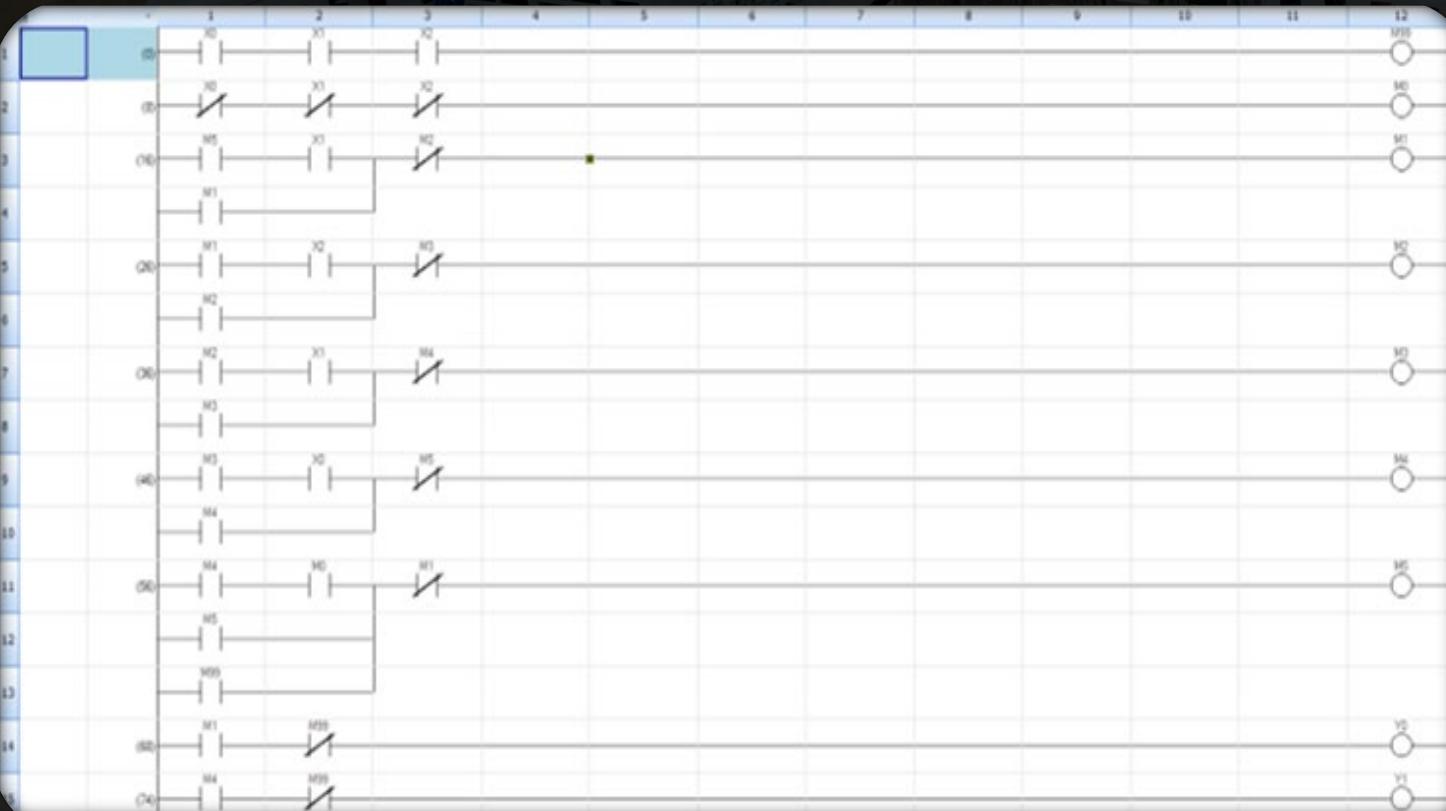
만들어진 하드웨어에
PLC와 아두이노를 결선한다

5. 프로그래밍

마지막으로 PLC 아두이노에
프로그래밍을 한다.



프로그래밍

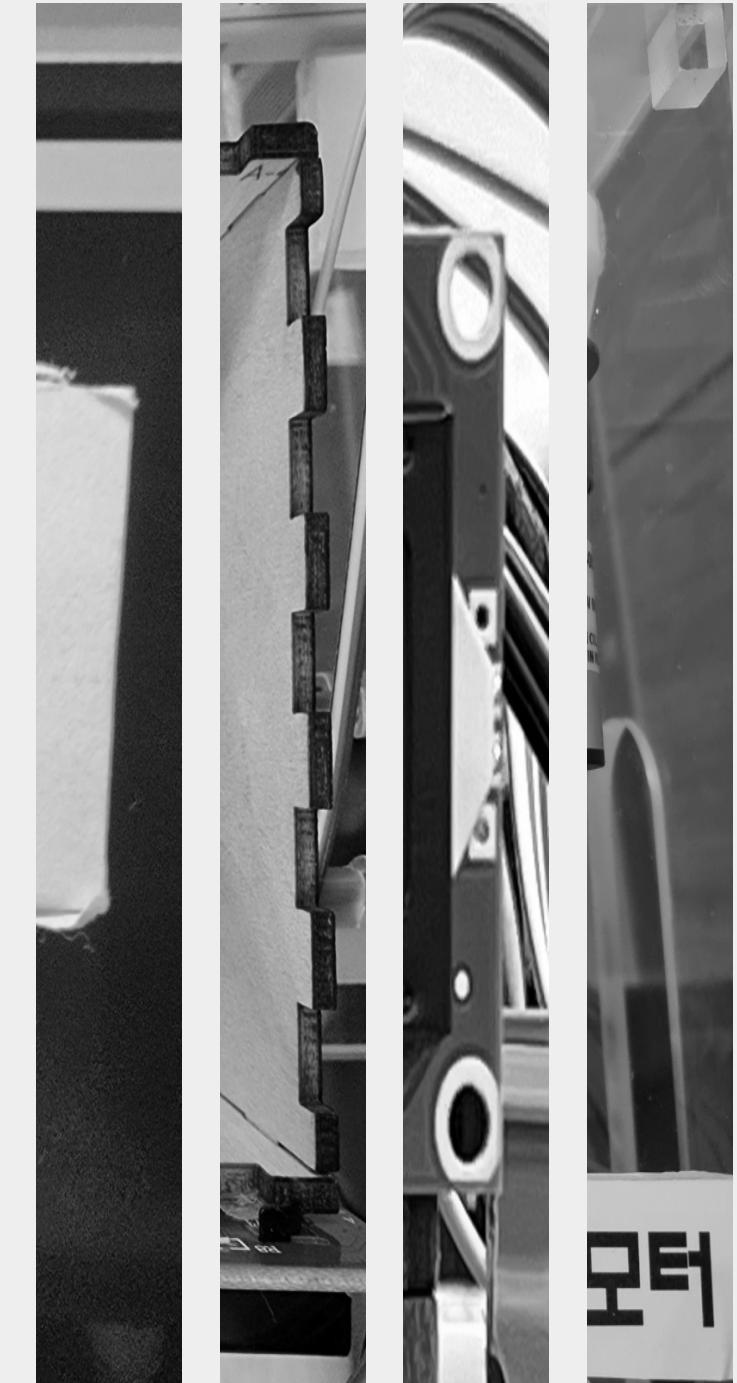


```
arduino_3_mp3_speker.ino
73 }
74 void Level_0() {
75   digitalWrite(r,LOW);
76   digitalWrite(g,LOW);
77   digitalWrite(b,LOW);
78   digitalWrite(relay1,HIGH);
79   digitalWrite(relay2,HIGH);
80   digitalWrite(relay3,HIGH);
81   lcd.clear();
82   lcd.setCursor(0,0);
83   lcd.print("warning Level 0"); //safety
84   lcd.setCursor(5,1);
85   lcd.print("safety");
86   delay(100);
87 }
88 void Level_1() {
89   digitalWrite(r,HIGH);
90   digitalWrite(g,LOW);
91   digitalWrite(b,LOW);
92   digitalWrite(relay1,LOW);
93   digitalWrite(relay2,HIGH);
94   digitalWrite(relay3,HIGH);
95   lcd.clear();
96   lcd.setCursor(0,0);
97   lcd.print("warning Level 1"); //Be careful
98   lcd.setCursor(3,1);
99   lcd.print("Be careful");
100 myDFPlayer.playFolder(1,2);
101 delay(5400);
102 }
103 void Level_2() {
104   digitalWrite(r,HIGH);
105   digitalWrite(g,HIGH);
106   digitalWrite(b,LOW);
107   digitalWrite(relay1,HIGH);
108   digitalWrite(relay2,LOW);
109   digitalWrite(relay3,HIGH);
110   lcd.clear();
111   lcd.setCursor(0,0);
112   lcd.print("warning Level 2"); //Turn right
113   lcd.setCursor(3,1);
114   lcd.print("Turn right");
115   myDFPlayer.playFolder(2,2);
116   delay(5700);
117 }
```



사용된 하드웨어

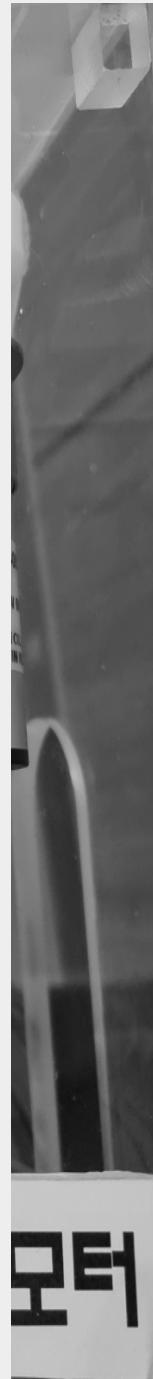
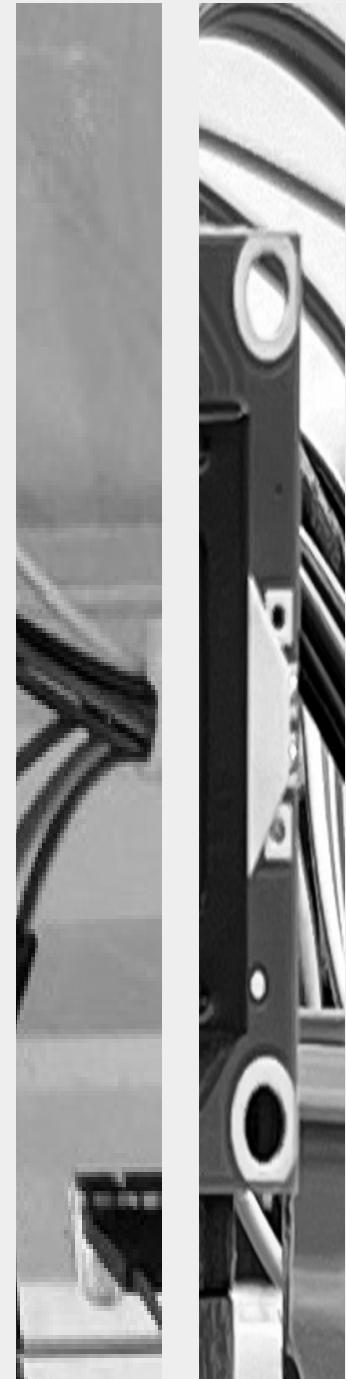
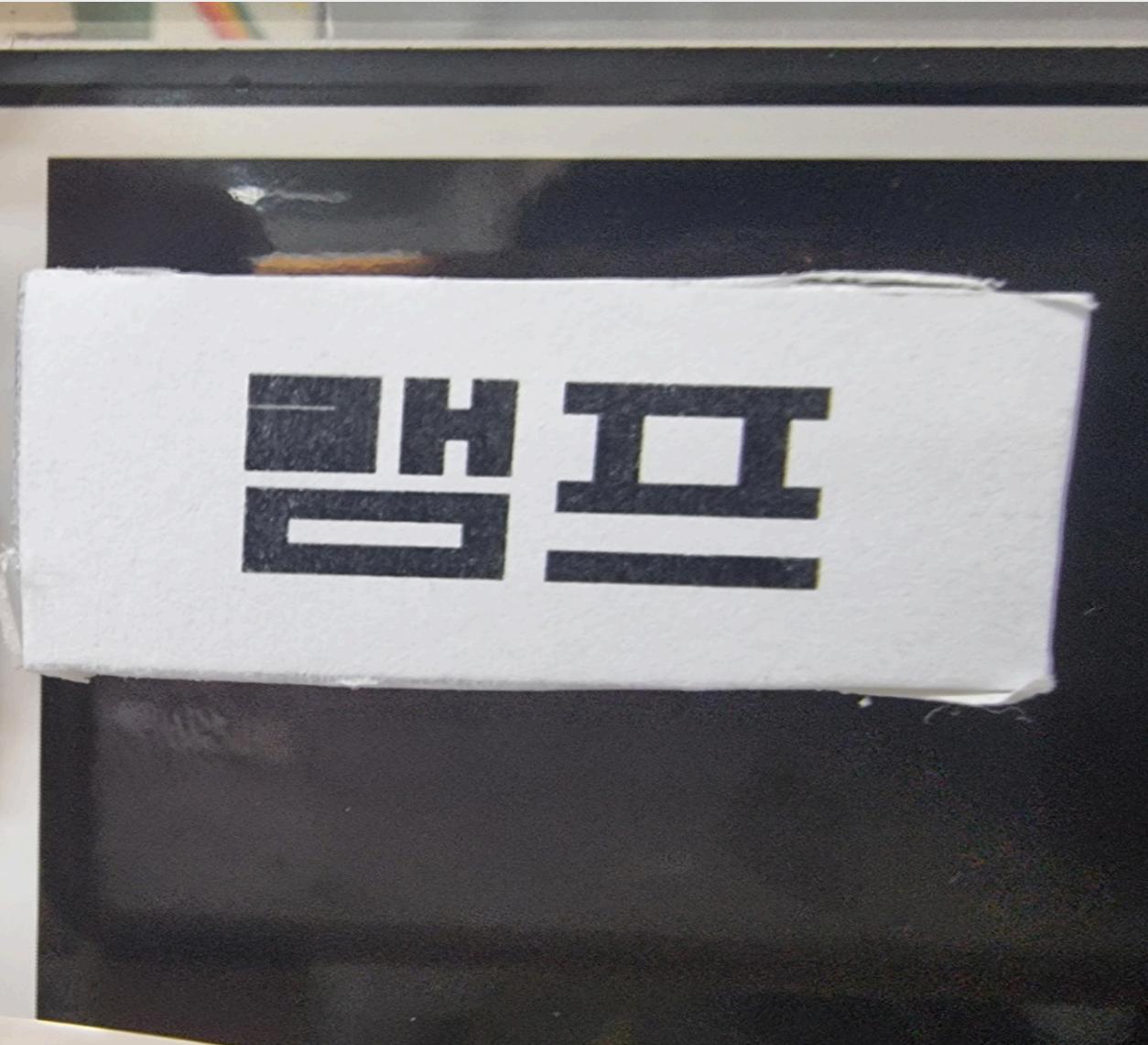
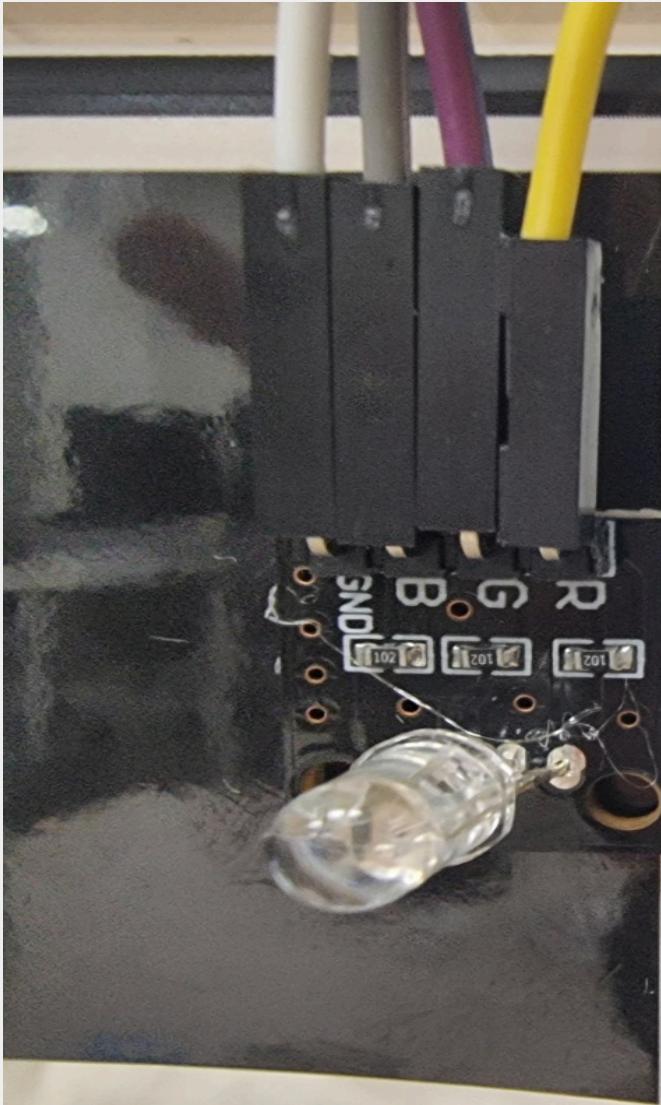
**Floodian
Hardware**



LED 경고등



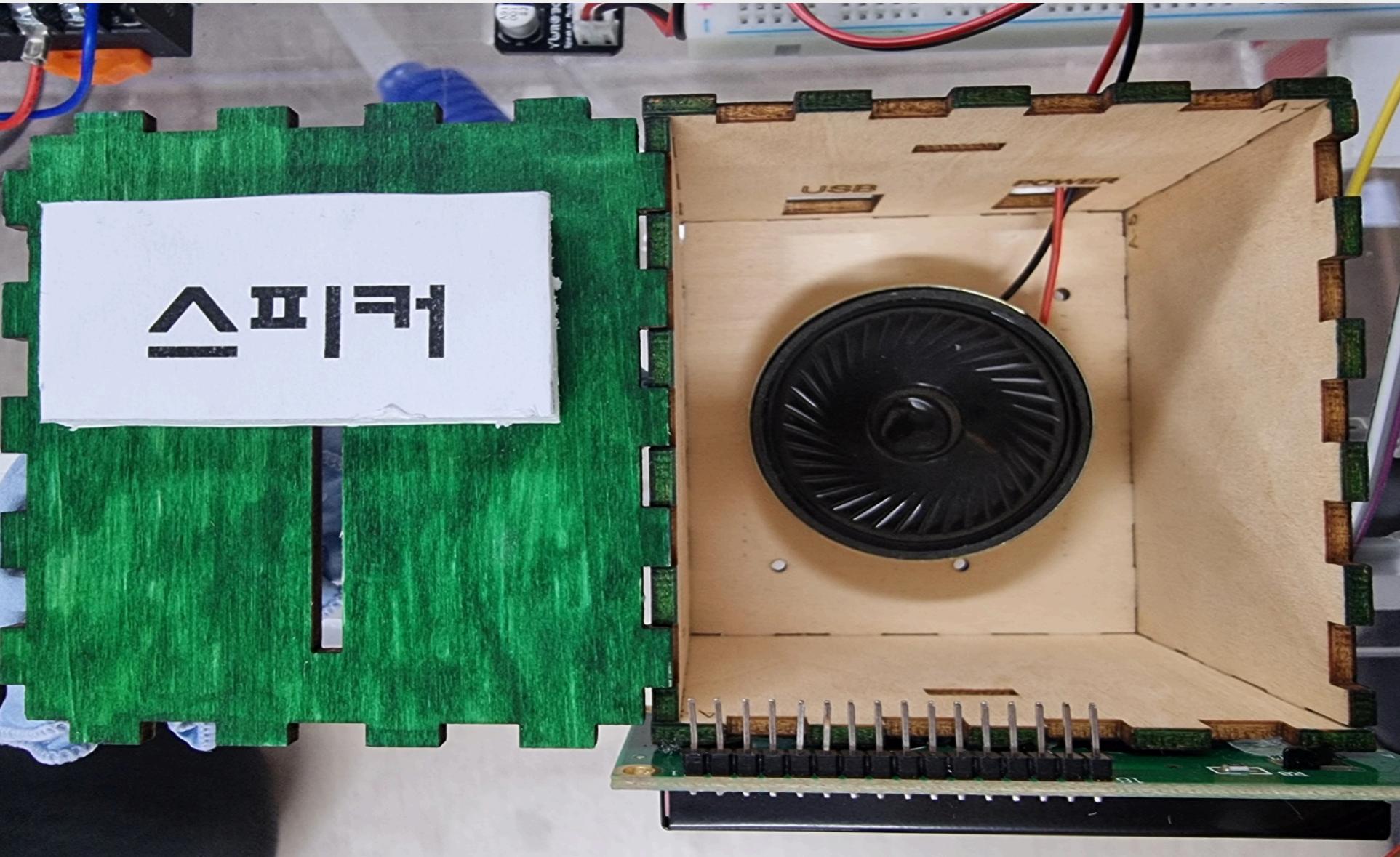
LED Lamp



스피커



Speaker



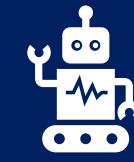
모터

LCD 모니터

LCD Monitor



DC 모터

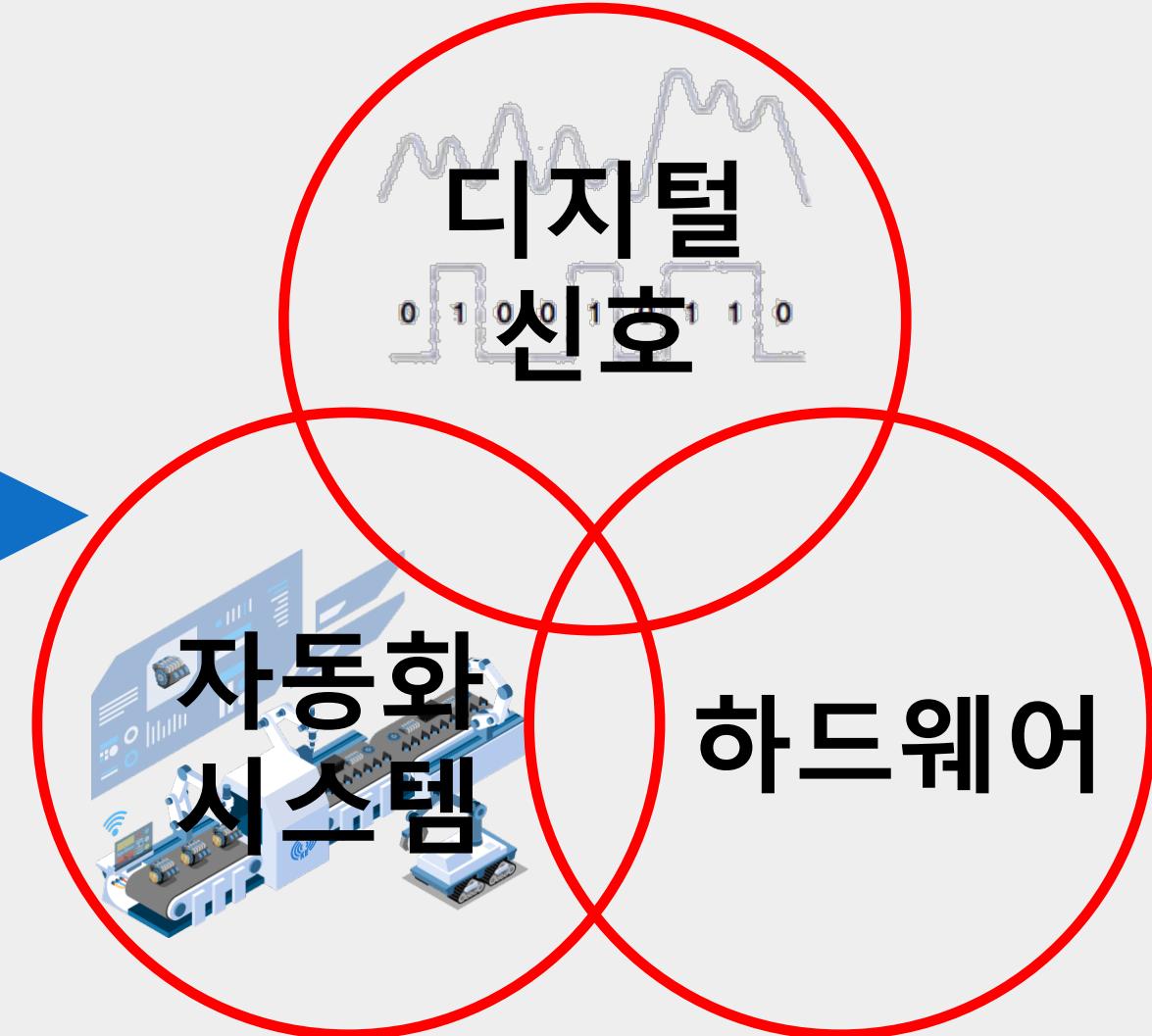


DC Motor



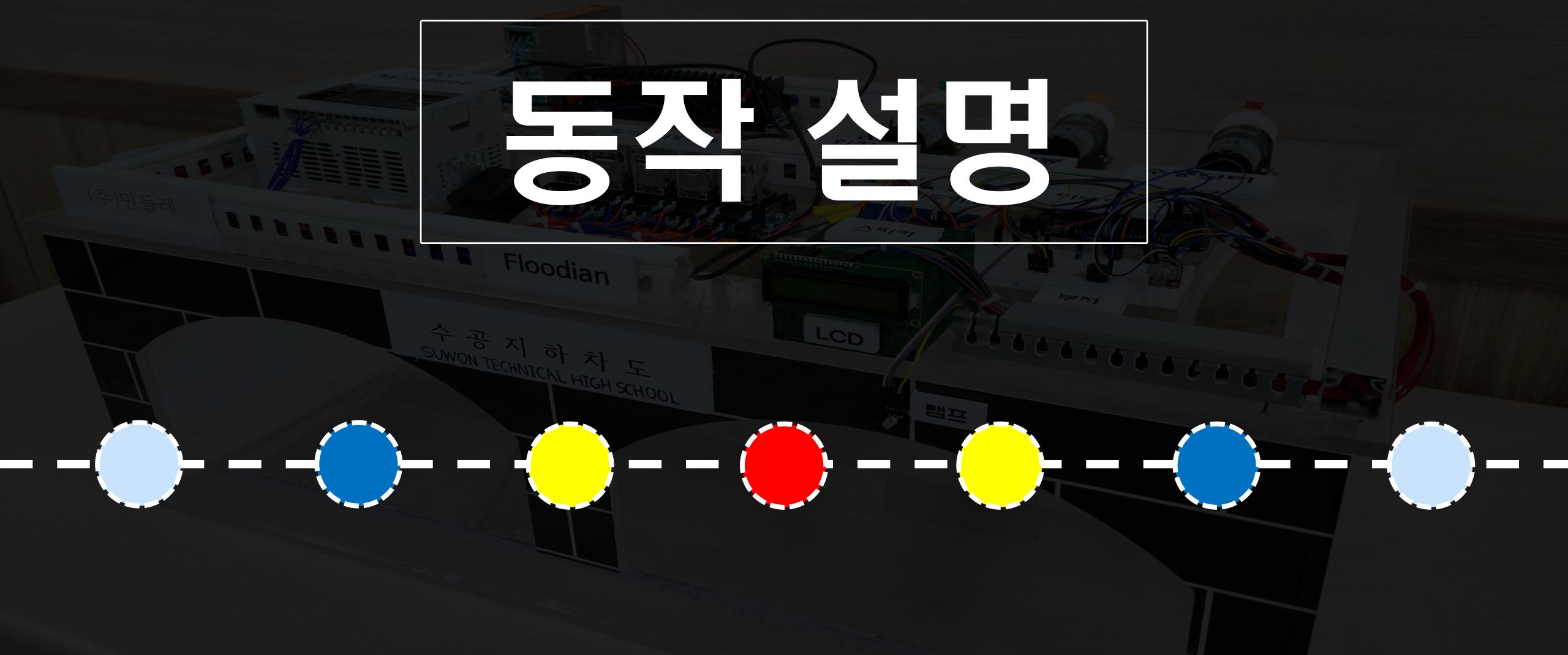


프로젝트 과정 - 구현 방식

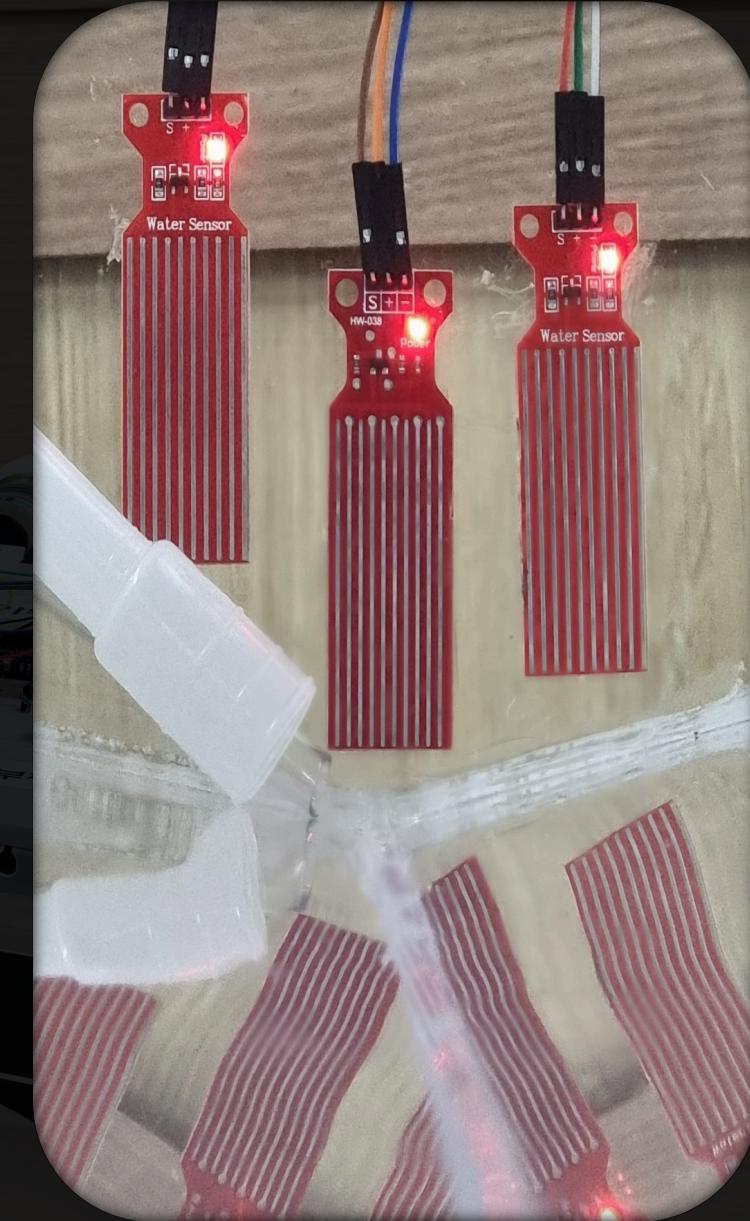
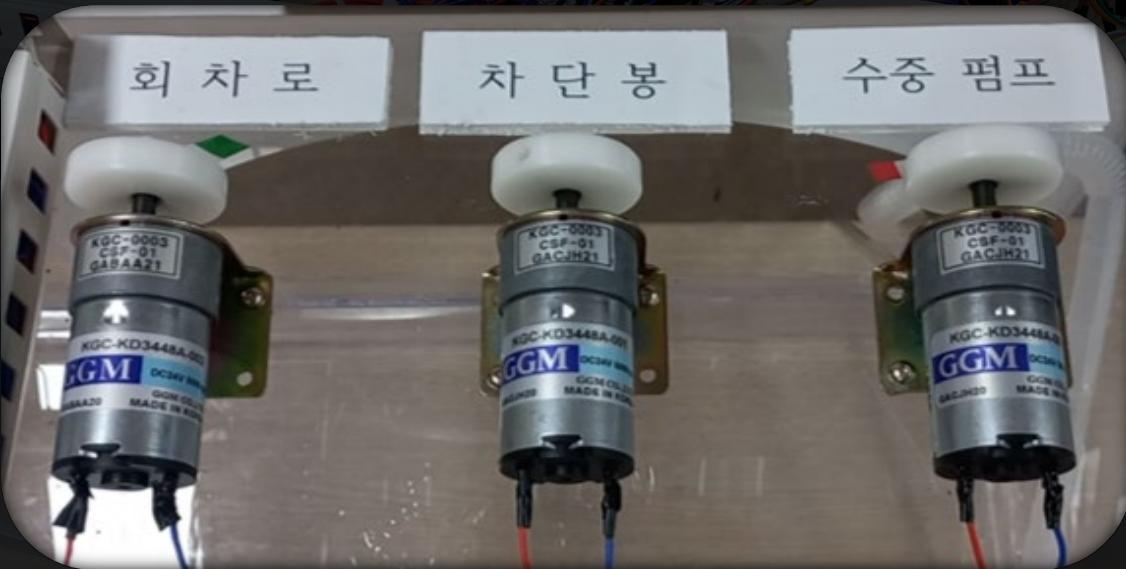


FLOODIAN

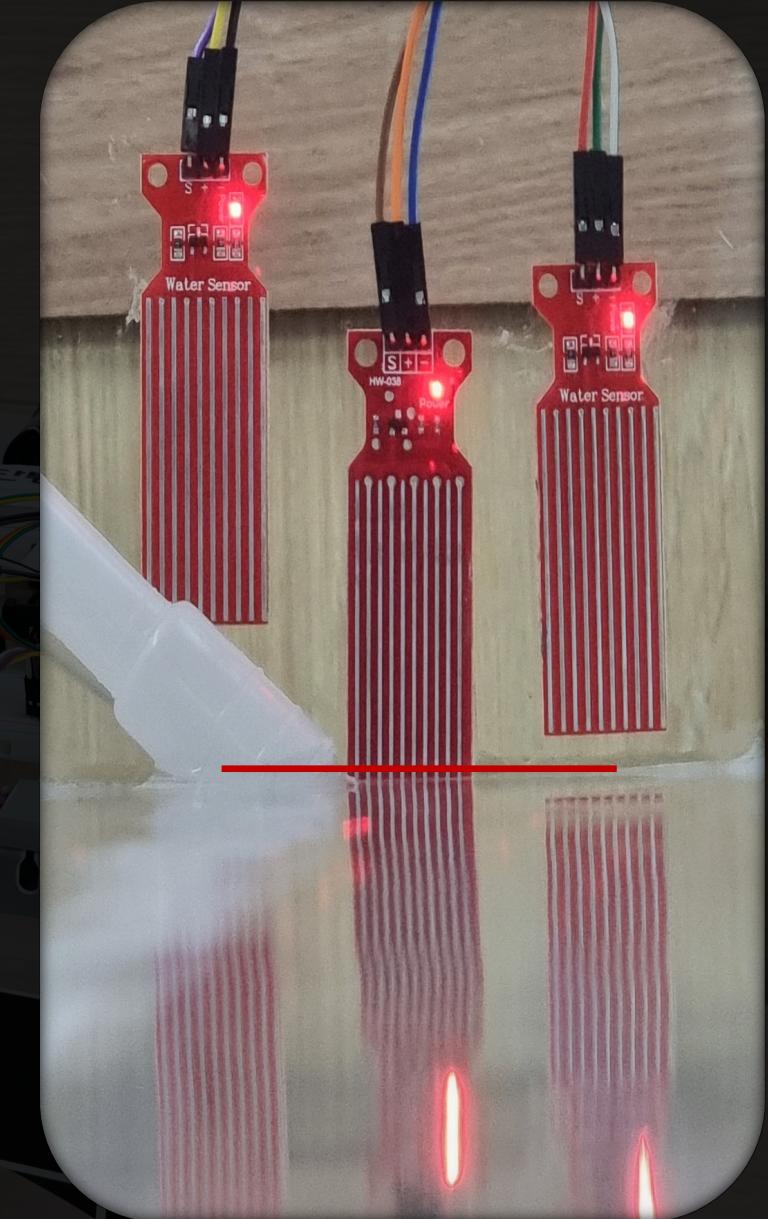
동작설명



0단계



1단계



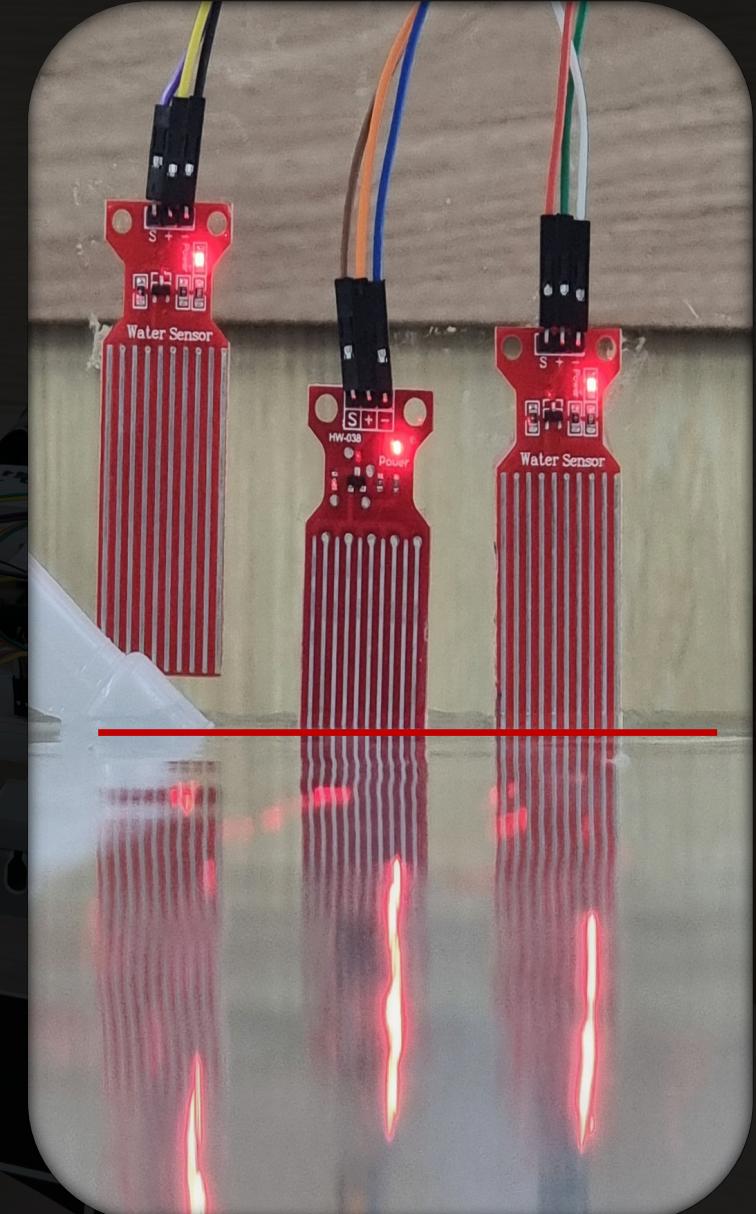
2단계



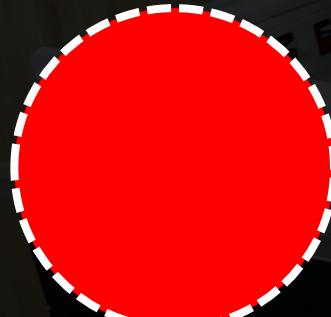
회차로

차단봉

수중 펌프



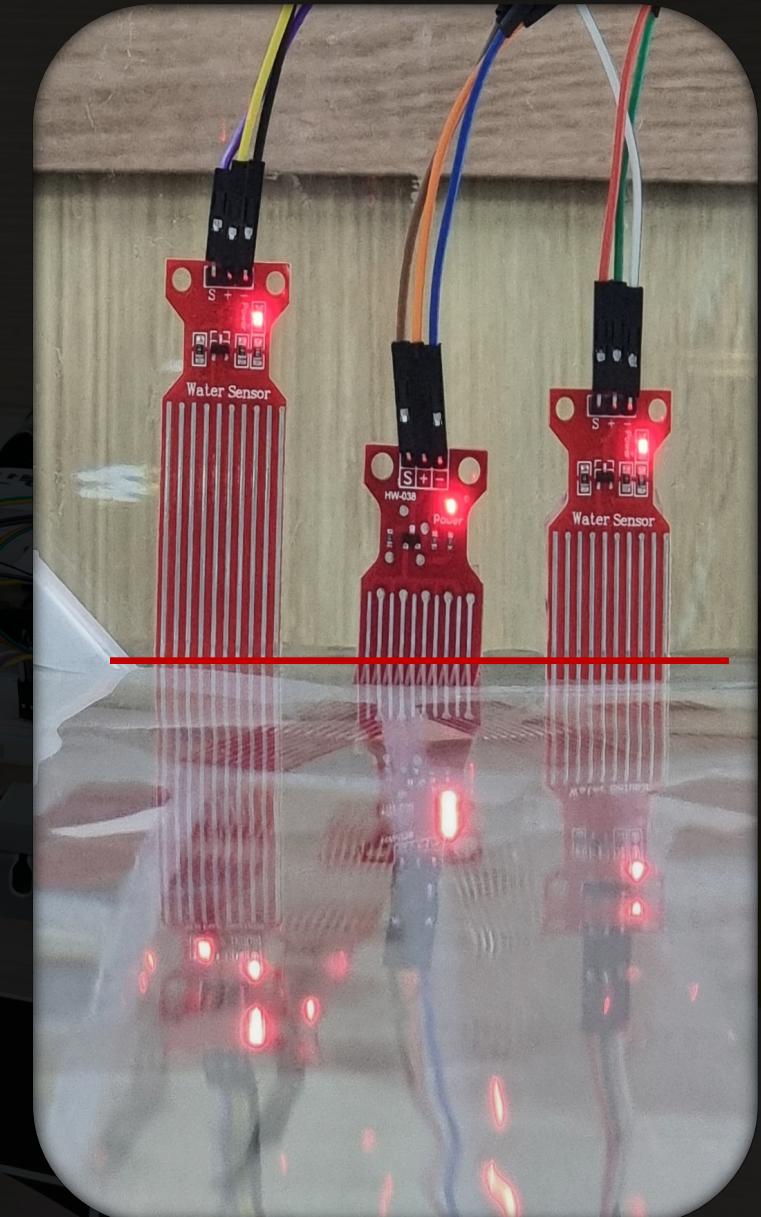
3단계



회차로

차단봉

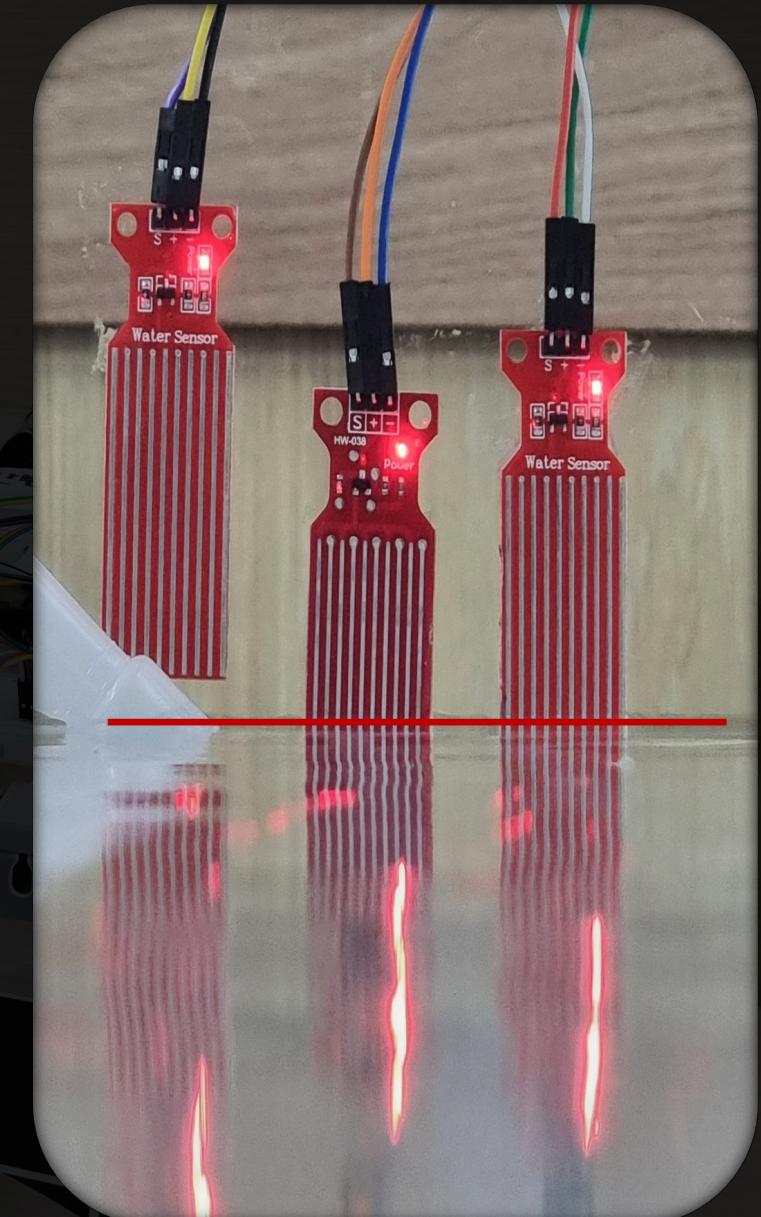
수중 펌프



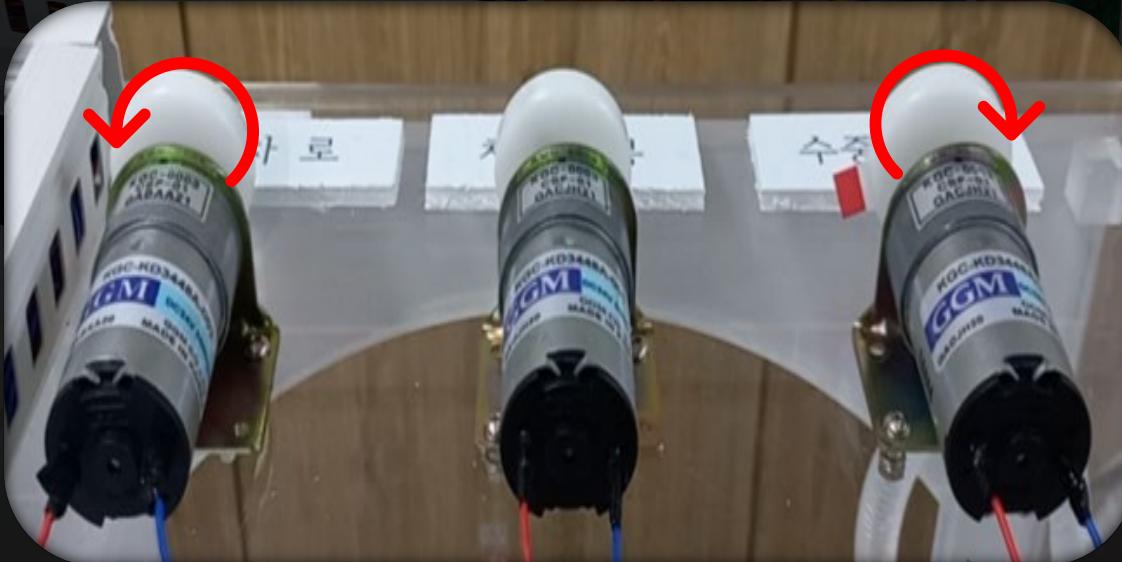
2단계



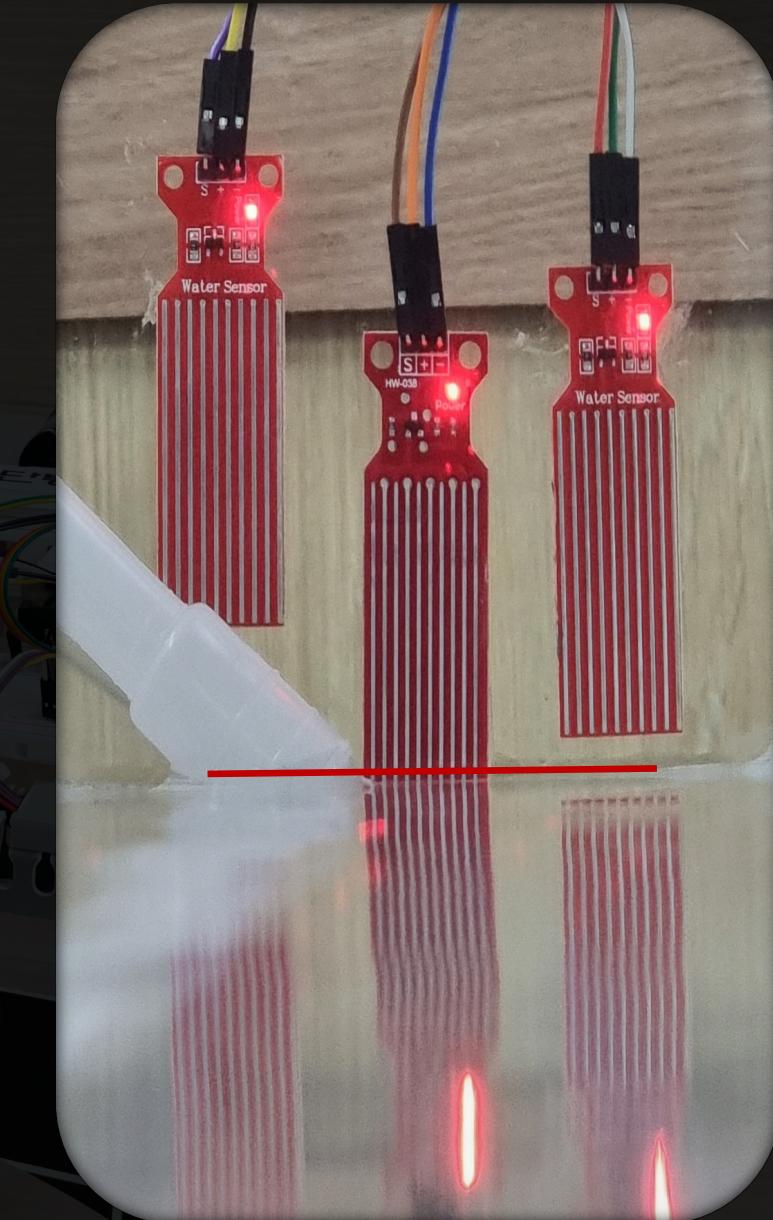
수중 펌프



1단계



수중 펌프



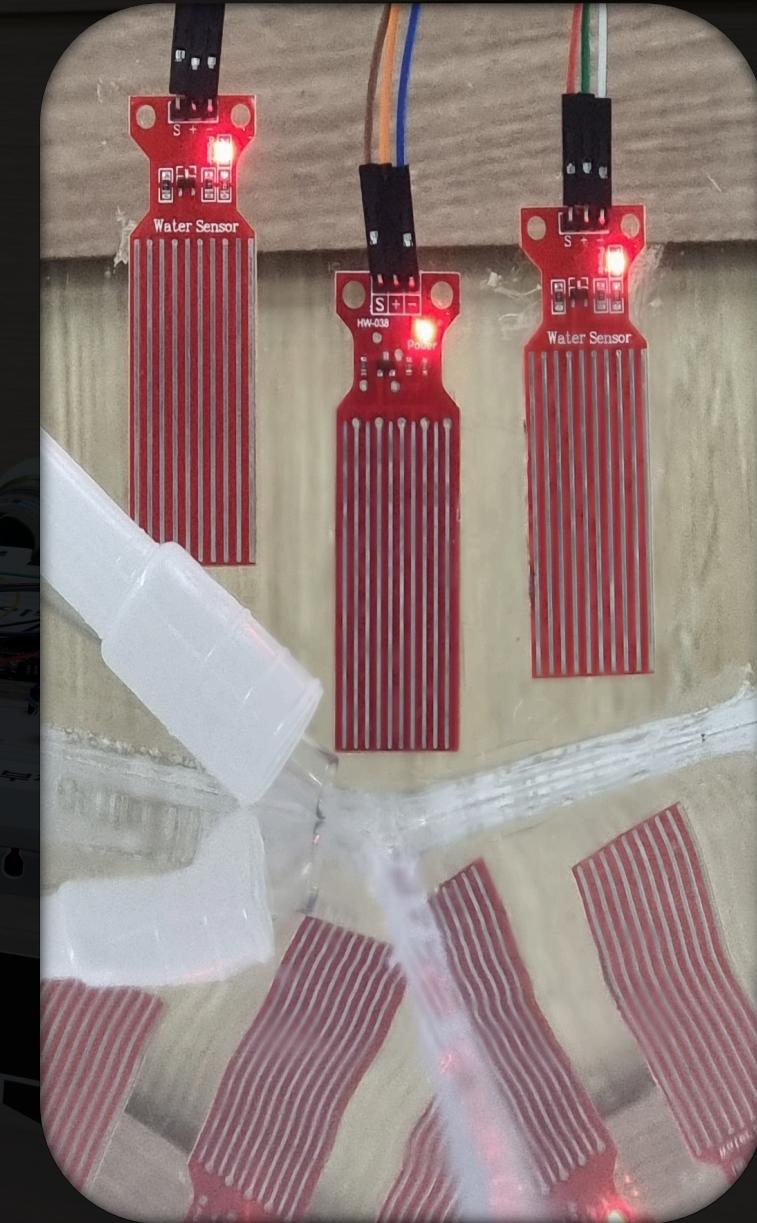
0단계



회차로

차단봉

수중 펌프



기대효과



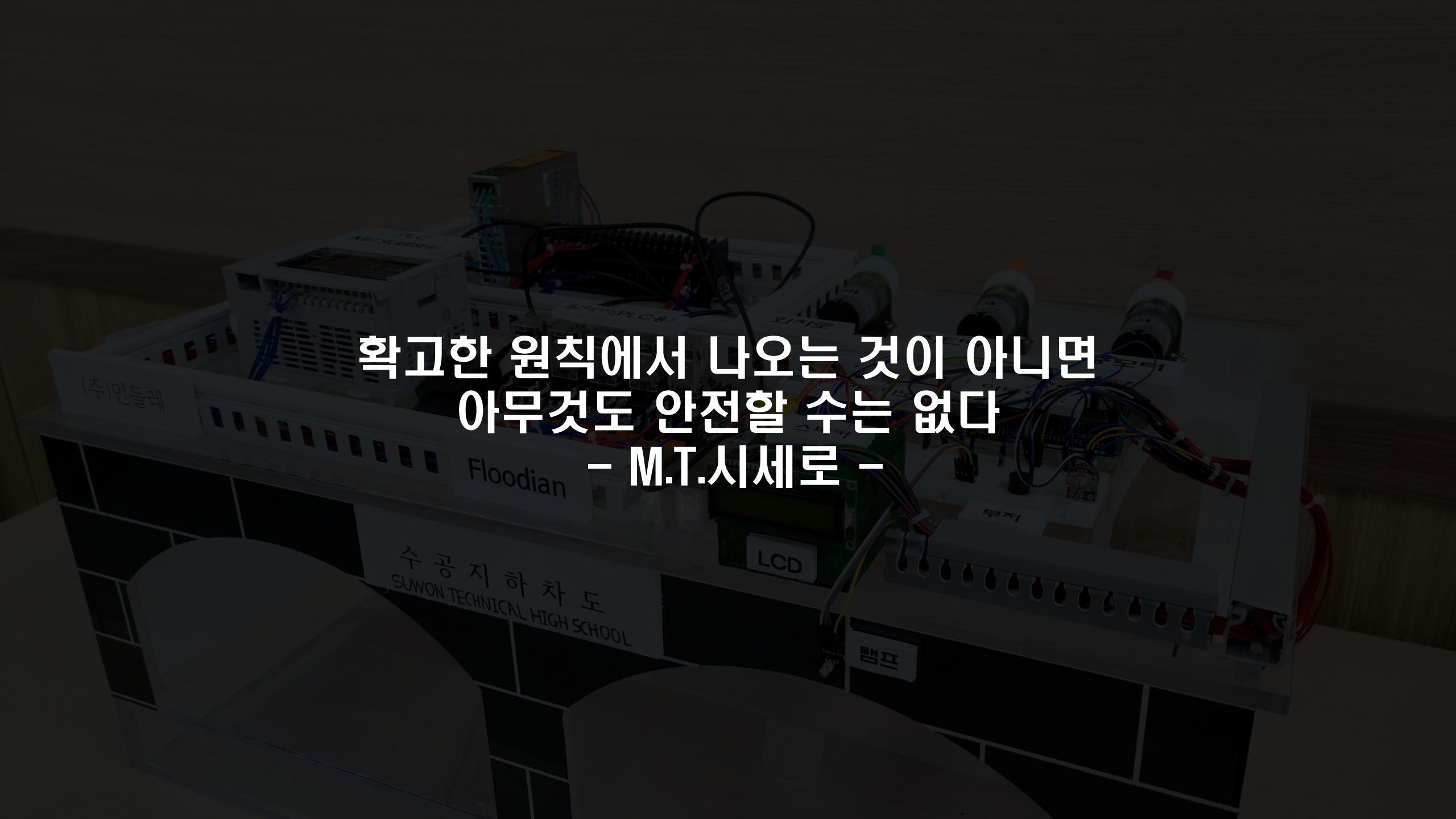
오송 지하차도 시범 운행

↓
시범 운행 성공

↓
전국적으로 확대

↓
전국 지하차도 안전 운행

↓
인명피해 미발생

A photograph of an industrial control system setup. It includes a central rack with various electronic components, labeled 'Floodian' and 'LCD'. A small monitor is mounted on the rack, displaying some data. Above the rack, there's a white box labeled 'PLC' and 'MITSUBISHI'. Numerous wires and cables are visible, connecting the different parts of the system. The background is dark, making the white equipment stand out.

확고한 원칙에서 나오는 것이 아니면
아무것도 안전할 수는 없다
- M.T.시세로 -

FLOODIAN

작아/온다

