

LAPORAN DAN DOKUMENTASI HASIL PEMROGRAMAN IOT

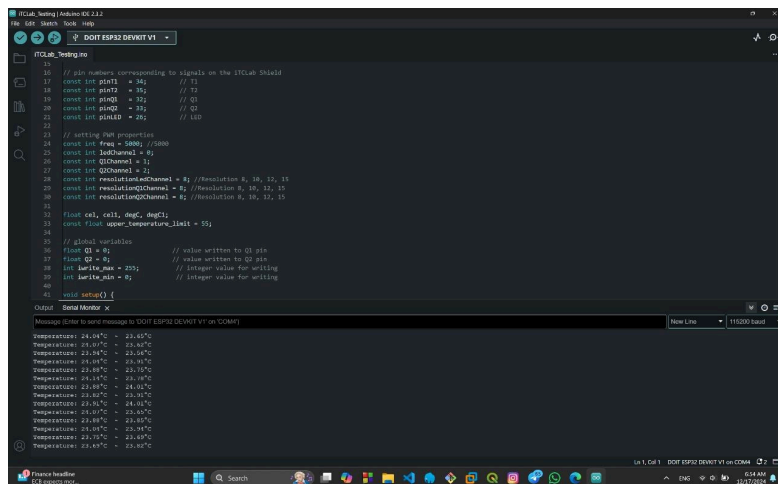


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**PRODI INFORMATIKA
FAKULTAS ILMU KOMPUTER
UNIVERSITAS PEMBANGUNAN NASIONAL
“VETERAN” JAWA TIMUR
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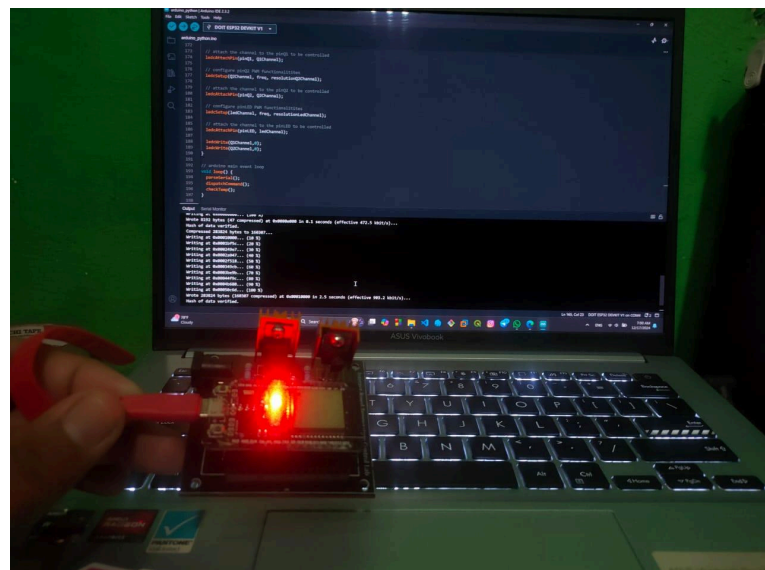
Pengujian 1



Pengujian 2



Pengujian 3

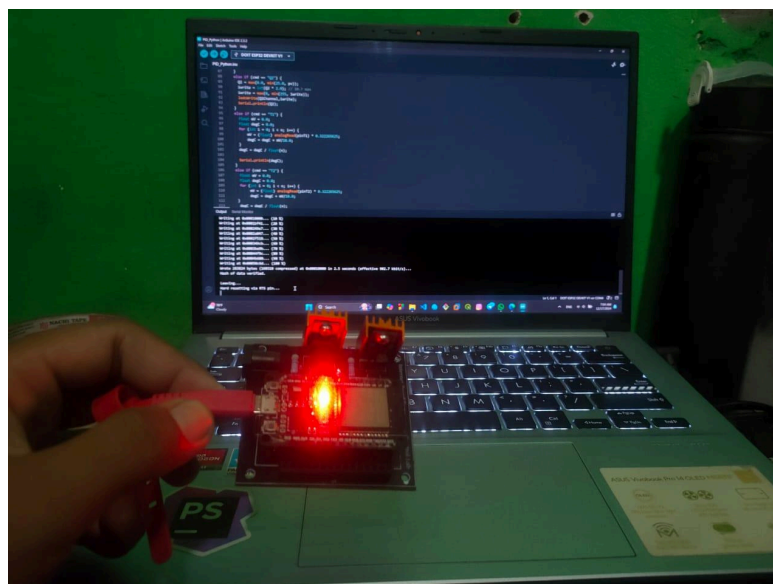


Pengujian 5

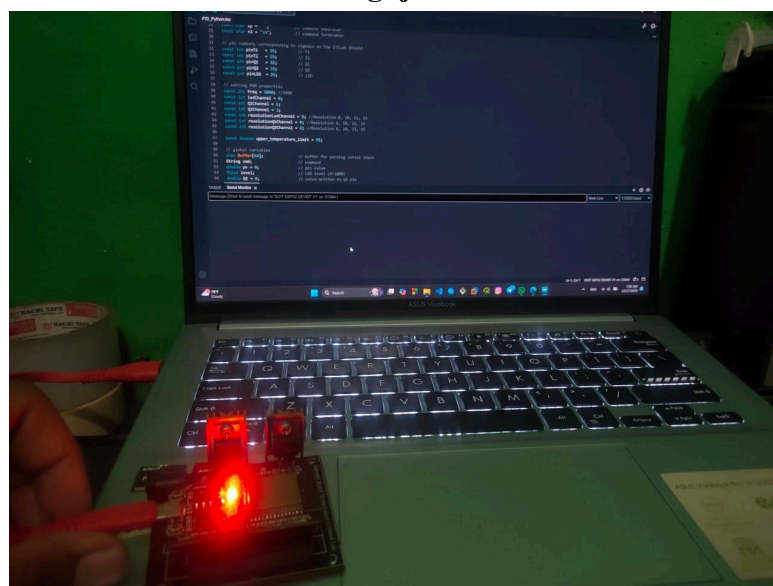
```
Arduino IDE 1.8.12
File Edit Sketch Tools Help
PID Arduino
DOIT ESP32 DEVKIT V1

150 if ((op < uplo) || (op > uphi)) {
151   z = z * K2 + error * dt;
152   // data output
153   op = max(plo, min(ophi, op));
154 }
155 iarr = i;
156 Serial.println("op:" + String(op) + " p:" + String(p) + " d:" + String(d) + " u:" + String(u) + " P:" + String(P) + " z:" + String(z) + " D:" + String(D));
157 return op;
158 }
159
160 void loop() {
161   newTs = millis();
162   if (newTs - ts > 1000) {
163     // put your main code here, to run repeatedly:
164     calTemp();
165     if (cell > upper_temperature_limit){
166       Qlow();
167       return;
168     }
169     else {
170       Qlow();
171       return;
172     }
173     if (cell > upper_temperature_limit){
174       Qlow();
175     }
176   }
177 }
178
179 Serial Monitor x
180
181 Message (Click to send message to DOIT ESP32 DEVKIT V1 via COM4)
182
183 Temperature T1: 23.05°C ~ Temperature T2: 23.78°C
184 op: 24.00 pr: 24.00 dt: 1.00 op: 100.00 P: 111.04 T: 0.00 D: 0.00
185 Temperature T1: 24.02°C ~ Temperature T2: 23.80°C
186 op: 24.00 pr: 24.00 dt: 1.00 op: 100.00 P: 107.54 T: 0.00 D: 1.41
187 Temperature T1: 24.25°C ~ Temperature T2: 24.11°C
188 op: 24.00 pr: 24.00 dt: 1.00 op: 100.00 P: 107.54 T: 0.00 D: 1.41
189 Temperature T1: 23.94°C ~ Temperature T2: 24.23°C
190 op: 24.00 pr: 24.00 dt: 1.00 op: 100.00 P: 105.04 T: 0.00 D: 2.38
191 Temperature T1: 24.05°C ~ Temperature T2: 23.80°C
192 op: 24.00 pr: 24.00 dt: 1.00 op: 100.00 P: 111.04 T: 0.00 D: 0.00
193 Temperature T1: 24.05°C ~ Temperature T2: 24.45°C
194 op: 24.00 pr: 24.00 dt: 1.00 op: 100.00 P: 108.04 T: 0.00 D: 0.47
195 Temperature T1: 24.23°C ~ Temperature T2: 23.85°C
196 op: 24.00 pr: 24.00 dt: 1.00 op: 100.00 P: 107.44 T: 0.00 D: 1.41
```

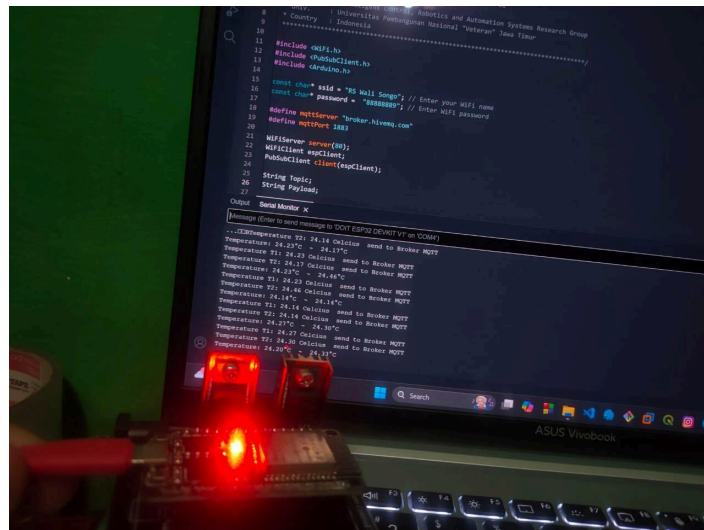
Pengujian 6



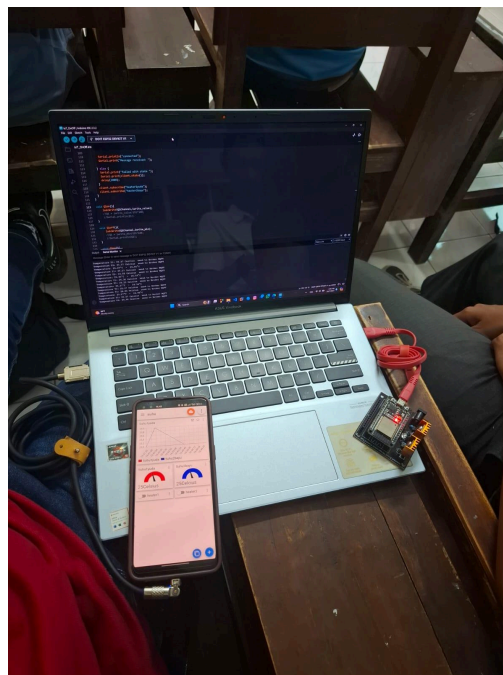
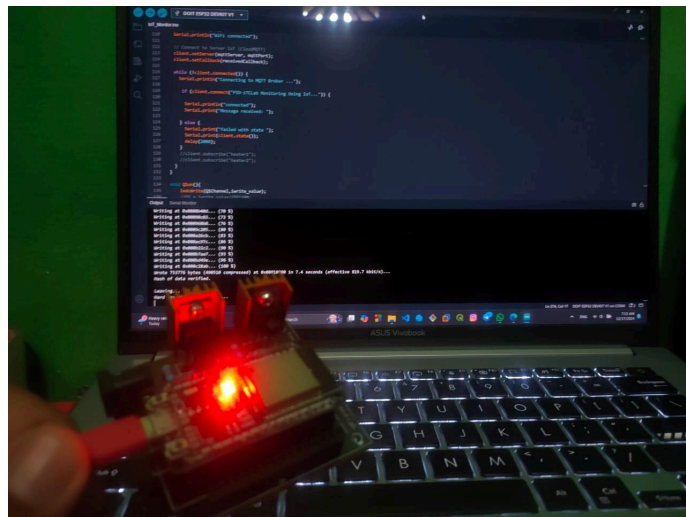
Pengujian 7



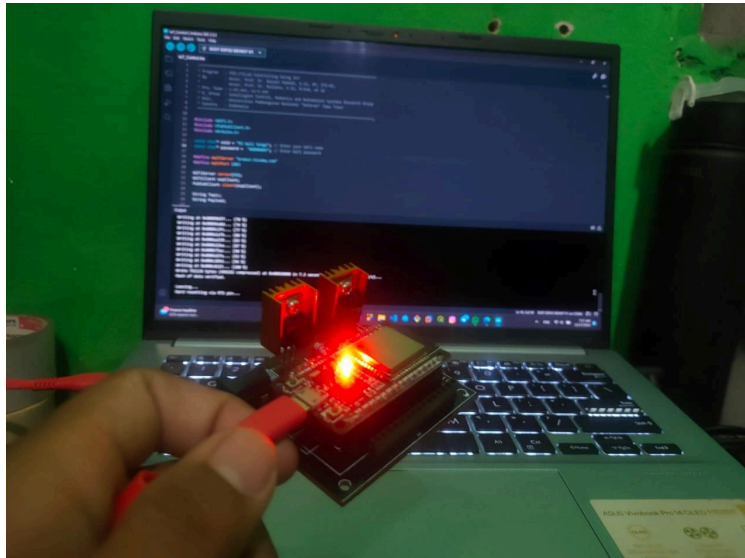
Pengujian 8



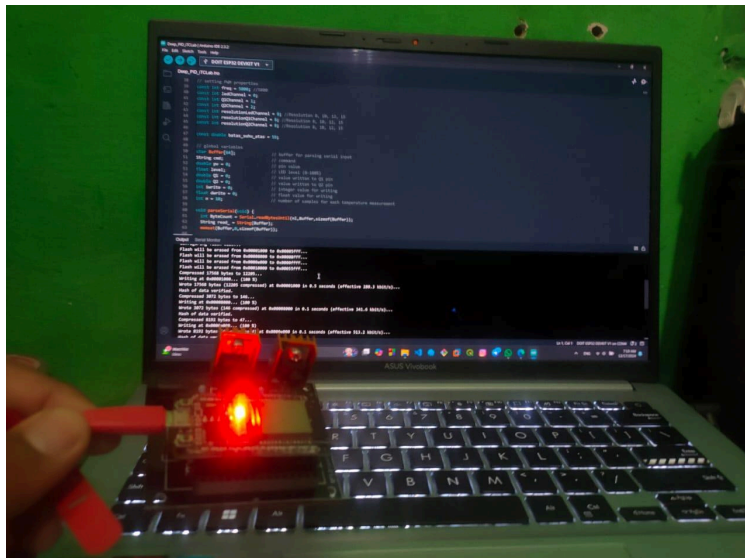
Pengujian 9



Pengujian 10



Pengujian 13



Pengujian 14

