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<a name="home">

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<div style="text-align: center;">

<a href="#">[KEMBALI KE MENU SEBELUMNYA]</a></div>

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<center>

<div style="background-color: white; border: 2px dashed rgb(23, 128, 221); height: 240px; overflow: auto; padding: 10px; text-align: center; width: 330px;">

<b>DAFTAR ISI</b>

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<div style="text-align: left;">

<a href="#kondisi">1. Prosedur</a></div>

<div style="text-align: left;">

<a href="#gambar">2. Hardware dan diagram blok</a></div>

<div style="text-align: left;">

<a href="#video">3. Rangkaian Simulasi dan Prinsip kerja</a></div>

<div style="text-align: left;">

<a href="#prinsip">4. FlowChart</a></div>

<div style="text-align: left;">

<a href="#link">5.Kondisi</a></div>

<div style="text-align: left;">

<a href="#link">6.Video Simulasi</a></div>

<div style="text-align: left;">

<a href="#link">7.Download File</a></div><div style="text-align: left;"><br /></div></div><center><span><span><b><span style="color: #38761d; font-family: georgia; font-size: medium;"><div style="text-align: center;"><br /></div><div style="text-align: center;">MODUL 2</div><div style="text-align: center;">PERCOBAAN 5 KONDISI 2</div><div><span><span><b><span style="color: #38761d; font-family: georgia; font-size: medium;"><br /></span></b></span></span></div>1. Prosedur</span></b><span style="font-family: georgia; font-size: medium;"><b>

<a name="kondisi"></a>

<a href="#home"><span style="color: #2b00fe;">[Kembali]</span></a></b></span></span></span><div><span style="color: #741b47; font-family: georgia; font-size: medium;"><b><br /></b></span><div><span style="font-family: georgia; font-size: medium;"><div><div style="background-color: white; color: #222222; font-size: medium;"><span face="Arial, Tahoma, Helvetica, FreeSans, sans-serif" style="font-size: 13.2px;">1. Rangkai rangkaian di

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proteus sesuai dengan kondisi percobaan.

2. Tulis program untuk arduino di software Arduino IDE.

3. Compile program tadi, lalu upload ke dalam arduino.

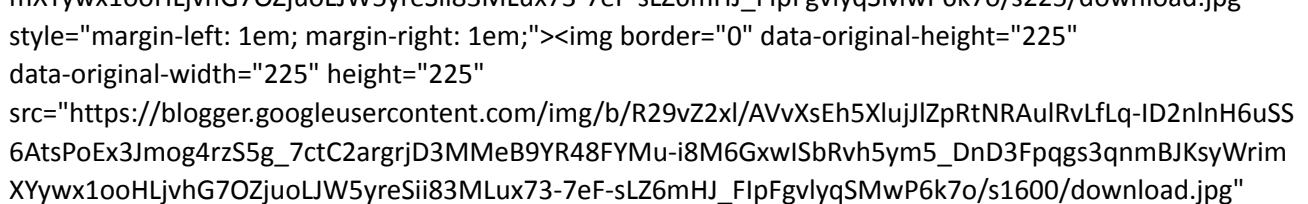
4. Setelah program selesai di upload, jalankan simulasi rangkaian pada proteus.

2. Hardware dan diagram blok

[Kembali]

hardware

1. SW SPDT



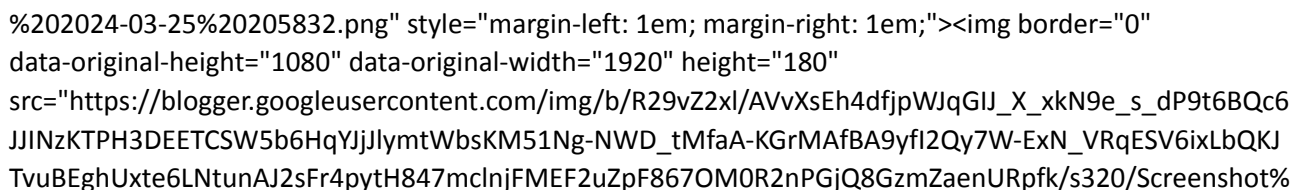
2. Arduino Uno

font-size: 13.2px; margin-left: 1em; margin-right: 1em; text-align: center; text-decoration-line: none;"></div><div style="color: #222222; font-family: Georgia, Utopia, "Palatino Linotype"; Palatino, serif; font-size: 15.4px;">
</div><div style="color: #222222; font-family: Georgia, Utopia, "Palatino Linotype"; Palatino, serif; font-size: 15.4px;">3. Driver Motor L293D</div><div style="color: #222222; font-family: Georgia, Utopia, "Palatino Linotype"; Palatino, serif; font-size: 15.4px;"><div class="separator" style="clear: both; text-align: center;"></div>

</div><div style="color: #222222; font-family: Georgia, Utopia, "Palatino Linotype"; Palatino, serif; font-size: 15.4px;">4. Motor DC</div><div style="color: #222222; font-family: Georgia, Utopia, "Palatino Linotype"; Palatino, serif; font-size: 15.4px;"><div class="separator" style="clear: both; text-align: center;"></div>

</div><div style="color: #222222; font-family: Georgia, Utopia, "Palatino Linotype"; Palatino, serif; font-size: 15.4px;">5. Max7219</div><div style="color: #222222; font-family: Georgia, Utopia, "Palatino Linotype"; Palatino, serif; font-size: 15.4px;"><div class="separator" style="clear: both; text-align: center;"></div>

</div><div style="color: #222222; font-family: Georgia, Utopia, "Palatino Linotype"; Palatino, serif; font-size: 15.4px;">6. Dot Matrix</div><div style="color: #222222; font-family: Georgia, Utopia, "Palatino Linotype"; Palatino, serif; font-size: 15.4px;">
</div><div style="color: #222222; font-family: Georgia, Utopia, "Palatino Linotype"; Palatino, serif; font-size: 15.4px;"><b style="font-size: large;">
</div><div style="color: #222222; font-family: Georgia, Utopia, "Palatino Linotype"; Palatino, serif; font-size: 15.4px;"><b style="font-size: large;"> b. Digram Blok</div><div style="color: #222222; font-family: Georgia, Utopia, "Palatino Linotype"; Palatino, serif; font-size: 15.4px;"><div class="separator" style="clear: both; text-align: center;"></div></div><div>
</div><div>
</div><div>
</div><div>
</div><div>3. Rangkaian Simulasi dan Prinsip kerja</div><div></div><div>[Kembali]</div><div>
</div><div><b style="background-color: white; color: #990000; font-family: times, "times new roman"; serif; font-size: 16.5px;">→Gambar Rangkaian Sebelum Disimulasikan</div><div>
</div><div class="separator" style="clear: both; text-align: center;"><a href="https://blogger.googleusercontent.com/img/b/R29vZ2xl/AVvXsEh4dfjpWJqGII_X_xkN9e_s_dP9t6BQc6JJINzKTPH3DEETCSW5b6HqYJjlymtWbsKM51Ng-NWD_tMfaA-KGrMAfBA9yfl2Qy7W-ExN_VRqESV6ixLbQKJTvuBEghUxte6LNTunAJ2sFr4pythH847mcInjFMEF2uZpF867OM0R2nPGjQ8GzmZaenURpfk/s1920/Screenshot

The image is a screenshot of a webpage. It features a diagram of a circuit configuration for a motor control system. The diagram shows a motor connected to a power source through a switch and a resistor. The text describes the setup and the operation of the system.

Gambar Rangkaian Setelah Disimulasikan

PRINSIP KERJA

Dalam rangkaian ini, menggunakan konfigurasi INPUT PULL DOWN dimana switch terhubung ke tegangan eksternal dan resistor terhubung ke ground. Sebuah resistor diletakkan di antara switch dan Arduino, membolehkan aliran arus dari tingkat potensial yang tinggi ke tingkat potensial yang rendah. Ketika switch dihidupkan, tegangan dari luar mengalir melalui switch dan tidak menuju ke ground karena adanya hambatan. Hal ini menyebabkan input Arduino ketika switch dalam posisi ON menjadi HIGH. Namun, ketika beralih ke mode mati, Arduino tidak mendapatkan suplai listrik dari luar dan sinyal input-nya berada dalam keadaan rendah. Pull Down Configuration ini bertolak belakang dengan Pull Up.

Pada proyek ini, Arduino dan modul MAX7219 digunakan untuk mengontrol motor DC dan menampilkan gambar pada dot matrix. Proses awal dimulai dengan mengatur modul MAX7219 menggunakan objek LedControl. Pin yang terhubung ke saklar dan mesin ditentukan apakah sebagai masukan atau keluaran. Dalam bagian utama perulangan, nilai dari setiap saklar didapat dengan menggunakan fungsi digitalRead(). Jika semua saklar dalam keadaan aktif (HIGH), motor akan dimatikan dan tampilan dot matrix akan dikosongkan. Jika tidak, program akan memperoleh arah pergerakan motor berdasarkan kombinasi switch yang sedang aktif. Dalam hal mengendalikan putaran motor DC:

Jika switch1 dan switch3 dalam keadaan aktif, motor akan bergerak ke arah

kanan.<br style="background-color: white; box-sizing: border-box; color: #333333;" />Apabila switch2 dan switch4 dalam keadaan hidup, maka displayArrowRight() akan dipanggil untuk menampilkan gambar panah menghadap kanan pada dot matrix, sementara motor tidak bergerak.<br style="background-color: white; box-sizing: border-box; color: #333333;" />Array byte mengandung informasi dari panah dan akan ditampilkan menggunakan metode setRow() dari objek LedControl.<div>
</div><div>

4. FlowChart

[Kembali]</div><div><div class="separator" style="clear: both; text-align: center;">
</div>a. Listing Program

</div><div><i><div><div style="background-color: white; color: #4e5b61; font-family: Consolas, "Courier New", monospace; font-size: 14px; font-style: normal; white-space: pre;">#include <LedControl.h></div><br style="background-color: white; color: #4e5b61; font-family: Consolas, "Courier New", monospace; font-size: 14px; font-style: normal; white-space: pre;" /><div style="background-color: white; color: #4e5b61; font-family: Consolas, "Courier New", monospace; font-size: 14px; font-style: normal; white-space: pre;">// Inisialisasi modul MAX7219</div><div style="background-color: white; color: #4e5b61; font-family: Consolas, "Courier New", monospace; font-size: 14px; font-style: normal; white-space: pre;">LedControl lc = LedControl5, 6, 7, 1 // Pin DIN, CLK, LOAD (CS) dihubungkan ke Arduino</div><br style="background-color: white; color: #4e5b61; font-family: Consolas, "Courier New", monospace; font-size: 14px; font-style: normal; white-space: pre;" /><div style="background-color: white; color: #4e5b61; font-family: Consolas, "Courier New", monospace; font-size: 14px; font-style: normal; white-space: pre;">const int switch1Pin = A0; // Switch 1 connected to pin A0</div><div style="background-color: white; color: #4e5b61; font-family: Consolas, "Courier New", monospace; font-size: 14px; font-style: normal; white-space: pre;">const int switch2Pin = A1; // Switch 2 connected to pin A1</div><div style="background-color: white; color: #4e5b61; font-family: Consolas, "Courier New", monospace; font-size: 14px; font-style: normal; white-space: pre;">const int switch3Pin = A2; // Switch 3 connected to pin A2</div><div style="background-color: white; color: #4e5b61; font-family: Consolas, "Courier New", monospace; font-size: 14px; font-style: normal; white-space: pre;">const int switch4Pin = A3; // Switch 4 connected to pin A3</div><br style="background-color: white; color: #4e5b61; font-family: Consolas, "Courier New", monospace; font-size: 14px; font-style: normal; white-space: pre;" /><div style="background-color: white; color: #4e5b61; font-family: Consolas, "Courier New", monospace; font-size: 14px; font-style: normal; white-space: pre;">const int

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#00979d;">int</span> pin3Output = <span style="color: #005c5f;">3</span>;<span style="color: 
#95a5a6;"> // Output pin connected to pin 3 (motor control)</span></div><div style="background-color: 
white; color: #4e5b61; font-family: Consolas, &quot;Courier New&quot;; monospace; font-size: 14px; 
font-style: normal; white-space: pre;"><span style="color: #00979d;">const</span> <span style="color: 
#00979d;">int</span> pin4Output = <span style="color: #005c5f;">4</span>;<span style="color: 
#95a5a6;"> // Output pin connected to pin 4 (motor control)</span></div><br style="background-color: 
white; color: #4e5b61; font-family: Consolas, &quot;Courier New&quot;; monospace; font-size: 14px; 
font-style: normal; white-space: pre;" /><div style="background-color: white; color: #4e5b61; font-family: 
Consolas, &quot;Courier New&quot;; monospace; font-size: 14px; font-style: normal; white-space: 
pre;"><span style="color: #00979d;">const</span> <span style="color: #00979d;">int</span> motor1Pin1 = 
<span style="color: #005c5f;">2</span>;</div><div style="background-color: white; color: #4e5b61; 
font-family: Consolas, &quot;Courier New&quot;; monospace; font-size: 14px; font-style: normal; 
white-space: pre;"><span style="color: #00979d;">const</span> <span style="color: #00979d;">int</span> 
motor1Pin2 = <span style="color: #005c5f;">3</span>;</div><br style="background-color: white; color: 
#4e5b61; font-family: Consolas, &quot;Courier New&quot;; monospace; font-size: 14px; font-style: normal; 
white-space: pre;" /><div style="background-color: white; color: #4e5b61; font-family: Consolas, 
&quot;Courier New&quot;; monospace; font-size: 14px; font-style: normal; white-space: pre;"><span 
style="color: #00979d;">void</span> <span style="color: #d35400;">setup</span><span style="color: 
#434f54;">()</span> <span style="color: #434f54;">{</span></div><div style="background-color: white; 
color: #4e5b61; font-family: Consolas, &quot;Courier New&quot;; monospace; font-size: 14px; font-style: 
normal; white-space: pre;"><span style="color: #95a5a6;">&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&~\n Set up dot matrix module</span></div><div style="background-color: white; color: #4e5b61; font-family: Consolas, \n\n";<span style="color: #d35400;">lc</span>.<span style="color: #d35400;">shutdown</span><span style="color: #434f54;">}(</span><span style="color: #005c5f;">0</span>, <span style="color: #005c5f;">>false</span><span style="color: #434f54;">)</span>;<span style="color: #95a5a6;"> // Mengaktifkan modul</span></div><div style="background-color: white; color: #4e5b61; font-family: Consolas, \n\n";<span style="color: #d35400;">lc</span>.<span style="color: #d35400;">setIntensity</span><span style="color: #434f54;">(</span><span style="color: #005c5f;">0</span>, <span style="color: #005c5f;">8</span><span style="color: #434f54;">)</span>;<span style="color: #95a5a6;"> // Mengatur kecerahan (0-15)</span></div><div style="background-color: white; color: #4e5b61; font-family: Consolas, \n\n";<span style="color: #d35400;">lc</span>.<span style="color: #d35400;">clearDisplay</span><span style="color: #434f54;">(</span><span style="color: #005c5f;">0</span><span style="color: #434f54;">)</span>;<span style="color: #95a5a6;"> // Membersihkan tampilan</span></div><br style="background-color: white; color: #4e5b61; font-family: Consolas, \n\n"/><div style="background-color: white; color: #4e5b61; font-family: Consolas, \n\n";<span style="color: #95a5a6;">&nbsp;&nbsp;&nbsp;&nbsp;& ~\\n Set up pins for motor</span></div><div style="background-color: white; color: #4e5b61; font-family: Consolas, \n\n";<span style="color: #d35400;">pinMode</span><span style="color: #434f54;">(</span><span style="color: #434f54;">pin3Output, OUTPUT</span><span style="color: #434f54;">)</span>;</div><div style="background-color: white; color: #4e5b61; font-family: Consolas, \n\n";<span style="color: #d35400;">pinMode</span><span style="color: #434f54;">(</span><span style="color: #434f54;">pin4Output, OUTPUT</span><span style="color: #434f54;">)</span>;</div><div style="background-color: white; color: #4e5b61; font-family: Consolas, \n\n";<span style="color: #d35400;">pinMode</span><span style="color:
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[illegible]

[illegible]

[illegible]

color: #4e5b61; font-family: Consolas, "Courier New"; monospace; font-size: 14px; font-style: normal; white-space: pre;"> lc.setRow(0,
row, arrowRight[row])</div><div style="background-color: white; color: #4e5b61; font-family: Consolas, "Courier New"; monospace; font-size: 14px; font-style: normal; white-space: pre;">)</div><div style="background-color: white; color: #4e5b61; font-family: Consolas, "Courier New"; monospace; font-size: 14px; font-style: normal; white-space: pre;"> delay(500)</div><div style="background-color: white; color: #4e5b61; font-family: Consolas, "Courier New"; monospace; font-size: 14px; font-style: normal; white-space: pre;"> lc.clearDisplay(0)</div><div style="background-color: white; color: #4e5b61; font-family: Consolas, "Courier New"; monospace; font-size: 14px; font-style: normal; white-space: pre;"> delay(500)</div><div style="background-color: white; color: #4e5b61; font-family: Consolas, "Courier New"; monospace; font-size: 14px; font-style: normal; white-space: pre;">)</div></div><div>
/></div></i></div><div>b. Flowchart</div><div>
/></div><div><div class="separator" style="clear: both; color: #222222; font-family: verdana; font-size: medium; font-weight: 400; text-align: center;">a
href="https://blogger.googleusercontent.com/img/b/R29vZ2xl/AVvXsEj9SE93TrzkdzOY3jcink9uDyS6ry5B72r r2s0biZuT1UAGj4iPJ4jRtNsRgmhAi2vEVIF_-gp9_xLL1o1ZK-vNt2r1UVD-OTfQfOXAXtTDFB-Z_plrZsL8h7aXpk4D vBsQgiq5MFarVlnzi67rCwR0tiZS5cfgAco4n5EAmdN8LPfBqm3aDJ_KrOVqAz0/s615/Screenshot%202024-03-25%20214326.png" style="color: #993300; margin-left: 1em; margin-right: 1em; text-decoration-line: none;"></div><div class="separator" style="clear: both; color: #222222; font-family: verdana; font-size: medium; font-weight: 400; text-align: center;">a
href="https://blogger.googleusercontent.com/img/b/R29vZ2xl/AVvXsEh5fMajr3u7lit5rgrpewik2stLAevxO7p clpiek7iPW2jS8g5ihZOaoVHanN9kbNXXKGjLpEsH1HgIn5gfeDiLAKQt-SeGWSZkg7v9NcFLytMi72pT4LaKyZOur3l qeYDbVERQfrnNDoeCXC63bDs_CFYA4Dnh1oApPYmWuTONLnQGojRt7aNo-bHqj0jY/s728/Screenshot%202024-03-25%20215801.png" style="color: #993300; margin-left: 1em; margin-right: 1em; text-decoration-line: none;">klik disini</div><div style="color: #222222;
font-family: verdana; font-size: medium;">
</div><div style="color: #222222; font-family: verdana;
font-size: medium;">
</div><div style="color: #222222; font-family: verdana; font-size: medium;">
</div><div style="color: #222222; font-family: verdana; font-size: medium;">
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