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<h1 style="text-align: center;"><span style="font-family: times; font-size: large;">Aplikasi&nbsp;
Kontrol Garasi</span></h1><div><span style="font-family: times; font-size: large;"><b><br
/></b></span></div><span style="font-family: times;"><a name="home">

</a>

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

<a href="https://febry212030.blogspot.com/p/modul-1_28.html#"><span style="background-color:
white; color: black; font-family: times; font-size: medium;">[KEMBALI KE MENU
SEBELUMNYA]</span></a></div>

<span><span style="background-color: white; font-family: times; font-size: medium;"><br />

</span></span><center>

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

<span><span style="background-color: white; font-family: times; font-size: medium;"><b>DAFTAR
ISI</b>

<br />

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

<a href="#pendahuluan"><span style="background-color: white; color: black; font-family: times;
font-size: medium;">1. Pendahuluan</span></a></div>

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

<a href="#tujuan"><span style="background-color: white; color: black; font-family: times; font-size:
medium;">2. Tujuan</span></a></div>

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

<a href="#alat"><span style="background-color: white; color: black; font-family: times; font-size:
medium;">3. Alat dan Bahan</span></a></div>

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

<a href="#dasar"><span style="background-color: white; color: black; font-family: times; font-size:
medium;">4. Dasar Teori</span></a></div>

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

<span><span style="background-color: white; font-family: times; font-size: medium;"><a
href="#percobaan"><span style="color: black;">5. Percobaan</span></a></span></span><div><div
style="margin: 5px;"><div class="smallfont" style="margin-bottom: 2px;"><span><i><span
style="background-color: white; font-family: times; font-size: medium; font-weight: bold;"><div
class="smallfont" style="margin-bottom: 2px;"><i><span style="font-weight:
bold;"><span>Percobaan</span> </span></i><input onclick="if
(this.parentNode.parentNode.getElementsByTagName('div')[1].getElementsByTagName('div')[0].styl
e.display != '') {
this.parentNode.parentNode.getElementsByTagName('div')[1].getElementsByTagName('div')[0].style.
display = ''; this.innerText = ''; this.value = 'Hide'; } else {

```

[\[Kembali\]](#)

 Seiring bertambahnya populasi dan juga jumlah kendaraan bermotor, maka semakin berkurang juga lahan parkir yang tersedia. Nantinya akan memaksa si pemilik kendaraan untuk memarkirkan kendaraannya hanya di tempat terbuka, tanpa ada pengawasan. Hal ini akan berakibat membuka kesempatan bagi oknum yang untuk melakukan tindak kriminal seperti pencurian

 Oleh karena itu ,diperlukan suatu inovasi agar dapat menjamin

keamanan kendaraan. Salah satu bentuk perwujudannya adalah dengan menggunakan Smart Garage yang memungkinkan pemilik kendaraan dapat memarkirkan kendaraannya dengan aman

2. Tujuan

Kembali

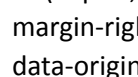
- Memenuhi tugas Mikroprosesor dan Mikrokontroler
- Menjelaskan prinsip kontrol garasi dengan
- input(sensor infrared dll) dan output(motor DC/AC & LCD 16 x 4/32 x 7 dotmatrik/7 7-segment dll)
- Mensimulasikan rangkaian yang menggunakan
- input(sensor infrared dll) dan output(motor DC/AC & LCD 16 x 4/32 x 7 dotmatrik/7 7-segment dll)

3. Alat dan Bahan

Kembali

1. Sensor UV

Sensor yang mendeteksi adanya cahaya terang dan gelap.



src="https://blogger.googleusercontent.com/img/a/AVvXsEjjxdZumjSFOBjc1JCUB4SIQgWhx-nAhTqMIzS-zTwzAERnHZK0vvb2vr4VG3BY3bxL_sSz2_YGrwadHDbXKxViwrYR1u9HYqhaNkpCCSuzFk62g_yYXAk_XMvA8u4aZVRwpO7gyNb3fQZcED5nwUCnOCVYwrVFfa2rjmJTxCiHOHCichGyYJ3INEGGTQ" style="border: none; cursor: url("https://cur.cursors-4u.net/cursors/cur-11/cur1054.cur"), auto; position: relative; width="240" /></div><br style="background-color: white; cursor: url("https://cur.cursors-4u.net/cursors/cur-11/cur1054.cur"), auto; font-size: 14.85px;" />Pinout<br style="background-color: white; cursor: url("https://cur.cursors-4u.net/cursors/cur-11/cur1054.cur"), auto; font-size: 14.85px;" /><div class="separator" style="background-color: white; clear: both; cursor: url("https://cur.cursors-4u.net/cursors/cur-11/cur1054.cur"), auto; font-size: 14.85px; text-align: center;"></div><br style="background-color: white; cursor: url("https://cur.cursors-4u.net/cursors/cur-11/cur1054.cur"), auto; font-size: 14.85px;" />Spesifikasi<br style="background-color: white; cursor: url("https://cur.cursors-4u.net/cursors/cur-11/cur1054.cur"), auto; font-size: 14.85px;" /><div class="separator" style="background-color: white; clear: both; cursor: url("https://cur.cursors-4u.net/cursors/cur-11/cur1054.cur"), auto; font-size: 14.85px; text-align: center;"></div><br style="background-color: white; cursor: url("https://cur.cursors-4u.net/cursors/cur-11/cur1054.cur"), auto; font-size: 14.85px;" /><span face="Arial, Tahoma, Helvetica, FreeSans, sans-serif" style="background-color: white;

font-size: 14.85px;"><Grafik Respon Sensor<br style="background-color: white; cursor: url("https://cur.cursors-4u.net/cursors/cur-11/cur1054.cur");, auto; font-size: 14.85px;" /><div class="separator" style="background-color: white; clear: both; cursor: url("https://cur.cursors-4u.net/cursors/cur-11/cur1054.cur");, auto; font-size: 14.85px; text-align: center;">a href="https://blogger.googleusercontent.com/img/a/AVvXsEgfYg6VkJdSxy451-UB6e1W_S1V9JOQ6UHTtTOMuh9v7CNXx91FctbNC5pfx67a-tqipv28RVLpx5NR8Qs-FPeF4i5wxspS4ifElyup9TitKktyqQKT2wY3zBCxfSw9HDOTdlOLEcs2XowxmznZert_br7eZrkj2vSWH-EVM_i6Vpr0lwF062VPR4g" style="color: #2b3dff; cursor: url("https://cur.cursors-4u.net/cursors/cur-11/cur1054.cur");, auto; margin-left: 1em; margin-right: 1em;"></div><div class="separator" style="background-color: white; clear: both; cursor: url("https://cur.cursors-4u.net/cursors/cur-11/cur1054.cur");, auto; font-size: 14.85px; text-align: center;">
</div><div class="separator" style="background-color: white; clear: both; cursor: url("https://cur.cursors-4u.net/cursors/cur-11/cur1054.cur");, auto; font-size: 14.85px; text-align: center;">
</div><div class="separator" style="background-color: white; clear: both; cursor: url("https://cur.cursors-4u.net/cursors/cur-11/cur1054.cur");, auto; font-size: 14.85px; text-align: center;">
</div><div class="separator" style="background-color: white; clear: both; cursor: url("https://cur.cursors-4u.net/cursors/cur-11/cur1054.cur");, auto; font-size: 14.85px; text-align: center;">
</div><div class="separator" style="background-color: white; clear: both; cursor: url("https://cur.cursors-4u.net/cursors/cur-11/cur1054.cur");, auto; font-size: 14.85px; text-align: left;">
</div><div class="separator" style="background-color: white; clear: both; cursor: url("https://cur.cursors-4u.net/cursors/cur-11/cur1054.cur");, auto; font-size: 14.85px; text-align: left;">2. Infra Red Sensor</div><div class="separator" style="background-color: white; clear: both; cursor: url("https://cur.cursors-4u.net/cursors/cur-11/cur1054.cur");, auto; font-size: 14.85px; text-align: left;">
</div><div class="separator" style="background-color: white; clear: both; cursor: url("https://cur.cursors-4u.net/cursors/cur-11/cur1054.cur");, auto; font-size: 14.85px; text-align: left;"><div class="separator" style="clear: both; color: #444444; font-size: 13.2px; white-space-collapse: preserve;">
</div><div class="separator" style="clear: both; color: #444444; font-size: 13.2px; white-space-collapse: preserve;">
</div><div class="separator" style="clear: both; font-size: 13.2px; text-align: center; white-space-collapse: preserve;"><div class="separator" style="clear: both; color: black;">a href="https://1.bp.blogspot.com/-0tRiU5DhQQY/X7HWevABKzl/AAAAAAAAABnU/ESuO3WI8BV07SaVEwxLd_c0MGd7bXAxxgCLCBGAsYHQ/s225/infrared%2B1.jpg" style="color: #2288bb; margin-left: 1em; margin-right: 1em; text-decoration-line: none;"></div><br style="color: black; text-align: justify;" /><div class="separator" style="clear: both; text-align: center;">a

href="https://i2.wp.com/teknisibali.com/wp-content/uploads/2019/11/Cara-Program-Modul-Sensor-Infrared-FC-51-Dengan-Arduino-2.jpg?resize=300%2C125&ssl=1" style="color: #2288bb; margin-left: 1em; margin-right: 1em; text-decoration-line: none;"></div>
<div class="separator" style="clear: both; color: black;"><div class="separator" style="clear: both;"></div></div><br style="color: black; text-align: justify;" /><ul style="color: black; line-height: 1.4; margin: 0.5em 0px; padding: 0px 2.5em; text-align: justify;"><li style="margin: 0px 0px 0.25em; padding: 0px;"><p>5VDC Operating voltage</p><li style="margin: 0px 0px 0.25em; padding: 0px;"><p>I/O pins are 5V and 3.3V compliant</p><li style="margin: 0px 0px 0.25em; padding: 0px;"><p>Range: Up to 20cm</p><li style="margin: 0px 0px 0.25em; padding: 0px;"><p>Adjustable Sensing range</p><li style="margin: 0px 0px 0.25em; padding: 0px;"><p>Built-in Ambient Light Sensor</p><li style="margin: 0px 0px 0.25em; padding: 0px;"><p>20mA supply current</p><li style="margin: 0px 0px 0.25em; padding: 0px;"><p>Mounting hole</p><div style="text-align: justify;">
<div style="text-align: justify;"><div style="color: #444444; margin-left: 1em; margin-right: 1em; text-align: left;"><div class="separator" style="clear: both;"><div style="color: #292929; text-align: justify; white-space-collapse: collapse;">3. Sensor PIR</div><div style="color: #292929; text-align: justify; white-space-collapse: collapse;"><div class="separator" style="clear: both; cursor: url("https://ani.cursors-4u.net/games/gam-16/gam1571.ani"), url("https://ani.cursors-4u.net/games/gam-16/gam1571.png"), auto; text-align: center;"><b style="cursor: url("https://ani.cursors-4u.net/games/gam-16/gam1571.ani"), url("https://ani.cursors-4u.net/games/gam-16/gam1571.png"), auto;"><a href="https://blogger.googleusercontent.com/img/a/AVvXsEgZiDNj5-wp-QMPBITPsuGuEo6adouR1ya dQKZBJxQ85j2nIM6DCKcmziFqGovC4c5ixupO1ZS8UY5iEvaQUPIyotR8snJgsimOsXSaCCvgUHm3Vxw40

tXpS-1FsPPXlw9gwbDWpFTJLCI-CO7DLpiyhdlYOz3qypVA5Q_PL6xcScakv2YLw-69f7CPfQ" style="color: black; cursor: url("https://ani.cursors-4u.net/games/gam-16/gam1571.ani"), url("https://ani.cursors-4u.net/games/gam-16/gam1571.png"), auto; margin-left: 1em; margin-right: 1em; text-decoration-line: none;"></div><b style="cursor: url("https://ani.cursors-4u.net/games/gam-16/gam1571.ani"), url("https://ani.cursors-4u.net/games/gam-16/gam1571.png"), auto;"><br style="cursor: url("https://ani.cursors-4u.net/games/gam-16/gam1571.ani"), url("https://ani.cursors-4u.net/games/gam-16/gam1571.png"), auto;" /><br style="cursor: url("https://ani.cursors-4u.net/games/gam-16/gam1571.ani"), url("https://ani.cursors-4u.net/games/gam-16/gam1571.png"), auto;" /><p style="cursor: url("https://ani.cursors-4u.net/games/gam-16/gam1571.ani"), url("https://ani.cursors-4u.net/games/gam-16/gam1571.png"), auto; text-align: left;"><p class="MsoNormal" style="cursor: url("https://ani.cursors-4u.net/games/gam-16/gam1571.ani"), url("https://ani.cursors-4u.net/games/gam-16/gam1571.png"), auto; text-align: left;">PIR (Passive Infrared Receiver) merupakan sebuah sensor berbasis infrared. Akan tetapi, tidak seperti sensor infrared kebanyakan yang terdiri dari IR LED dan fototransistor. PIR tidak memancarkan apapun seperti IR LED. Sesuai dengan namanya 'Passive', sensor ini hanya merespon energi dari pancaran sinar inframerah pasif yang dimiliki oleh setiap benda yang terdeteksi olehnya. Benda yang bisa dideteksi oleh sensor ini biasanya adalah tubuh manusia</p><p style="cursor: url("https://ani.cursors-4u.net/games/gam-16/gam1571.ani"), url("https://ani.cursors-4u.net/games/gam-16/gam1571.png"), auto;"></p><p class="MsoNormal" style="cursor: url("https://ani.cursors-4u.net/games/gam-16/gam1571.ani"), url("https://ani.cursors-4u.net/games/gam-16/gam1571.png"), auto; text-align: left;">Diagram sebsor PIR:</p><p style="cursor: url("https://ani.cursors-4u.net/games/gam-16/gam1571.ani"), url("https://ani.cursors-4u.net/games/gam-16/gam1571.png"), auto;"></p><p class="MsoNormal" style="cursor: url("https://ani.cursors-4u.net/games/gam-16/gam1571.ani"), url("https://ani.cursors-4u.net/games/gam-16/gam1571.png"), auto;"></p></div>

url("https://ani.cursors-4u.net/games/gam-16/gam1571.ani"),
url("https://ani.cursors-4u.net/games/gam-16/gam1571.png"), auto; text-align:
left;"></p><div class="separator" style="clear: both; cursor:
url("https://ani.cursors-4u.net/games/gam-16/gam1571.ani"),
url("https://ani.cursors-4u.net/games/gam-16/gam1571.png"), auto; text-align:
center;"><a
href="https://1.bp.blogspot.com/-3CIL_GuwYlg/YCslJhk0LMI/AAAAAAAAACVo/JdTIGi5qvOUc4Nzr9VrXJ8yGQNd_22qeACLcBGAsYHQ/s285/diagram%2Bpir.jpg" style="color: black; cursor:
url("https://ani.cursors-4u.net/games/gam-16/gam1571.ani"),
url("https://ani.cursors-4u.net/games/gam-16/gam1571.png"), auto; margin-left: 1em;
margin-right: 1em; text-decoration-line: none;"></div><br style="cursor:
url("https://ani.cursors-4u.net/games/gam-16/gam1571.ani"),
url("https://ani.cursors-4u.net/games/gam-16/gam1571.png"), auto; text-align: left;"
/><span style="cursor: url("https://ani.cursors-4u.net/games/gam-16/gam1571.ani"),
url("https://ani.cursors-4u.net/games/gam-16/gam1571.png"), auto; line-height: 18.4px;
text-align: left;"><br style="cursor:
url("https://ani.cursors-4u.net/games/gam-16/gam1571.ani"),
url("https://ani.cursors-4u.net/games/gam-16/gam1571.png"), auto;" /><p
style="cursor: url("https://ani.cursors-4u.net/games/gam-16/gam1571.ani"),
url("https://ani.cursors-4u.net/games/gam-16/gam1571.png"), auto; text-align:
left;"></p><p class="MsoNormal" style="cursor:
url("https://ani.cursors-4u.net/games/gam-16/gam1571.ani"),
url("https://ani.cursors-4u.net/games/gam-16/gam1571.png"), auto; text-align:
left;"><span face=""Arial","sans-serif"" style="cursor:
url("https://ani.cursors-4u.net/games/gam-16/gam1571.ani"),
url("https://ani.cursors-4u.net/games/gam-16/gam1571.png"), auto; line-height:
18.4px;">PIR (Passive Infrared Receiver) merupakan sebuah sensor berbasis infrared. Akan tetapi,
tidak seperti sensor infrared kebanyakan yang terdiri dari IR LED dan fototransistor. PIR tidak
memancarkan apapun seperti IR LED. Sesuai dengan namanya 'Passive', sensor ini hanya merespon
energi dari pancaran sinar inframerah pasif yang dimiliki oleh setiap benda yang terdeteksi olehnya.
Benda yang bisa dideteksi oleh sensor ini biasanya adalah tubuh manusia.<o:p style="cursor:
url("https://ani.cursors-4u.net/games/gam-16/gam1571.ani"),
url("https://ani.cursors-4u.net/games/gam-16/gam1571.png"),
auto;"></o:p></p><p class="MsoNormal" style="cursor:
url("https://ani.cursors-4u.net/games/gam-16/gam1571.ani"),
url("https://ani.cursors-4u.net/games/gam-16/gam1571.png"), auto; text-align:
left;"><span face=""Arial","sans-serif"" style="cursor:
url("https://ani.cursors-4u.net/games/gam-16/gam1571.ani"),
url("https://ani.cursors-4u.net/games/gam-16/gam1571.png"), auto; line-height:

18.4px;"></p><p class="MsoNormal" style="cursor: url("https://ani.cursors-4u.net/games/gam-16/gam1571.ani"), url("https://ani.cursors-4u.net/games/gam-16/gam1571.png"), auto; text-align: left;">Sensor PIR ini bekerja dengan menangkap energi panas yang dihasilkan dari pancaran sinar inframerah pasif yang dimiliki setiap benda dengan suhu benda diatas nol mutlak. Seperti tubuh manusia yang memiliki suhu tubuh kira-kira 32 derajat celcius, yang merupakan suhu panas yang khas yang terdapat pada lingkungan. Pancaran sinar inframerah inilah yang kemudian ditangkap oleh Pyroelectric sensor yang merupakan inti dari sensor PIR ini sehingga menyebabkan Pyroelectric sensor yang terdiri dari galium nitrida, caesium nitrat dan litium tantalate menghasilkan arus listrik. Mengapa bisa menghasilkan arus listrik? Karena pancaran sinar inframerah pasif ini membawa energi panas. Prosesnya hampir sama seperti arus listrik yang terbentuk ketika sinar matahari mengenai solar cell.</p><p class="MsoNormal" style="cursor: url("https://ani.cursors-4u.net/games/gam-16/gam1571.ani"), url("https://ani.cursors-4u.net/games/gam-16/gam1571.png"), auto; text-align: left;"></p><div style="cursor: url("https://ani.cursors-4u.net/games/gam-16/gam1571.ani"), url("https://ani.cursors-4u.net/games/gam-16/gam1571.png"), auto; text-align: left;"><div class="separator" style="clear: both; color: #222222; cursor: url("https://ani.cursors-4u.net/games/gam-16/gam1571.ani"), url("https://ani.cursors-4u.net/games/gam-16/gam1571.png"), auto; text-align: center;"><p class="MsoNormal" style="color: black; cursor: url("https://ani.cursors-4u.net/games/gam-16/gam1571.ani"), url("https://ani.cursors-4u.net/games/gam-16/gam1571.png"), auto; text-align: start;">Grafik Respon Pir terhadap suhu<o:p style="cursor: url("https://ani.cursors-4u.net/games/gam-16/gam1571.ani"), url("https://ani.cursors-4u.net/games/gam-16/gam1571.png"), auto;"></o:p></p><p class="MsoNormal" style="color: black; cursor: url("https://ani.cursors-4u.net/games/gam-16/gam1571.ani"), url("https://ani.cursors-4u.net/games/gam-16/gam1571.png"), auto; text-align: start;"></p><div class="separator" style="clear: both; color: black; cursor: url("https://ani.cursors-4u.net/games/gam-16/gam1571.ani"), url("https://ani.cursors-4u.net/games/gam-16/gam1571.png"), auto;"><a href="https://1.bp.blogspot.com/-viX_eG9NVu8/YCqpEKoGsfl/AAAAAACQo/0EGnJNx9mvQlqSAh28iPoUWa4mbmPduuwCLcBGAsYHQ/s294/grafik%2Bpir.png" style="color: #1a8e57; cursor: url("https://ani.cursors-4u.net/games/gam-16/gam1571.ani"), url("https://ani.cursors-4u.net/games/gam-16/gam1571.png"), auto; margin-left: 1em;

margin-right: 1em; text-decoration-line: none;"></div><br style="cursor: url("https://ani.cursors-4u.net/games/gam-16/gam1571.ani"), url("https://ani.cursors-4u.net/games/gam-16/gam1571.png"), auto;" /><p style="color: black; cursor: url("https://ani.cursors-4u.net/games/gam-16/gam1571.ani"), url("https://ani.cursors-4u.net/games/gam-16/gam1571.png"), auto; text-align: start;"></p><p class="MsoNormal" style="color: black; cursor: url("https://ani.cursors-4u.net/games/gam-16/gam1571.ani"), url("https://ani.cursors-4u.net/games/gam-16/gam1571.png"), auto; text-align: start;"></p><p class="MsoNormal" style="color: black; cursor: url("https://ani.cursors-4u.net/games/gam-16/gam1571.ani"), url("https://ani.cursors-4u.net/games/gam-16/gam1571.png"), auto; text-align: start;">Grafik sensor pir terhadap jarak, kecepatan, arah objek<o:p style="cursor: url("https://ani.cursors-4u.net/games/gam-16/gam1571.ani"), url("https://ani.cursors-4u.net/games/gam-16/gam1571.png"), auto;"></o:p></p><p class="MsoNormal" style="color: black; cursor: url("https://ani.cursors-4u.net/games/gam-16/gam1571.ani"), url("https://ani.cursors-4u.net/games/gam-16/gam1571.png"), auto; text-align: start;"></p><div class="separator" style="clear: both; color: black; cursor: url("https://ani.cursors-4u.net/games/gam-16/gam1571.ani"), url("https://ani.cursors-4u.net/games/gam-16/gam1571.png"), auto;"></div></div></div></div></div><div style="margin-left: 1em; margin-right: 1em; text-align: center;">
</div><div style="margin-left: 1em; margin-right: 1em;">Spesifikasi </div><div style="margin-left: 1em; margin-right: 1em;"></div></div><div style="color: #444444; margin-left: 1em; margin-right: 1em; text-align: left;">
</div><div style="color: #444444; margin-left: 1em; margin-right: 1em; text-align: left;">
</div><div style="color: #444444; margin-left: 1em; margin-right: 1em; text-align: left;">
</div><div style="color: #444444; margin-left: 1em; margin-right: 1em; text-align: left;"><div style="color: black; text-align: justify;">4. <b style="color: #666666; font-size: 15px; text-align: start; white-space-collapse: collapse;">Sensor LM35 </div><div style="color: black; text-align: justify;"><b style="color: #666666; font-size: 15px; text-align: start; white-space-collapse: collapse;"> </div><div style="color: #666666; font-size: 15px; text-align: justify; white-space-collapse: collapse;">Sensor suhu IC LM35 pada dasarnya memiliki 3 pin yang berfungsi sebagai sumber supply tegangan DC +5 volt, sebagai pin output hasil penginderaan dalam bentuk perubahan tegangan DC pada Vout dan pin untuk Ground.</div><div style="color: #666666; font-size: 15px; white-space-collapse: collapse;"><div style="border: 0px; box-sizing: border-box; font-stretch: inherit; font-variant-east-asian: inherit; font-variant-numeric: inherit; line-height: inherit; margin: 0px; padding: 0px; text-align: justify; vertical-align: baseline;"><b style="border: 0px; box-sizing: border-box; font-stretch: inherit; font-variant-east-asian: inherit; font-variant-numeric: inherit; line-height: inherit; margin: 0px; padding: 0px; transition: color 0.2s ease 0s; vertical-align: baseline;">Prinsip Kerja LM35 :</div><div style="border: 0px; box-sizing: border-box; font-stretch: inherit; font-variant-east-asian: inherit; font-variant-numeric: inherit; line-height: inherit; margin: 0px; padding: 0px; text-align: justify; vertical-align: baseline;"><b style="border: 0px; box-sizing: border-box; font-stretch: inherit; font-variant-east-asian: inherit; font-variant-numeric: inherit; line-height: inherit; margin: 0px; padding: 0px; transition: color 0.2s ease 0s; vertical-align: baseline;"><br style="box-sizing: border-box; margin: 0px; padding: 0px;" /></div><div style="text-align: justify;">Sensor LM35 bekerja dengan <b style="border: 0px; box-sizing: border-box; font-stretch: inherit; font-variant-east-asian: inherit; font-variant-numeric: inherit; line-height: inherit; margin: 0px; padding: 0px; transition: color 0.2s ease 0s; vertical-align: baseline;">mengubah besaran suhu <b style="border: 0px; box-sizing: border-box; font-stretch: inherit;

font-variant-east-asian: inherit; font-variant-numeric: inherit; line-height: inherit; margin: 0px; padding: 0px; transition: color 0.2s ease 0s; vertical-align: baseline;">besaran tegangan.

Tegangan ideal yang keluar dari LM35 mempunyai perbandingan 100°C setara dengan 1 volt. Sensor ini mempunyai pemanasan diri (self heating) kurang dari 0,1°C, dapat dioperasikan dengan menggunakan power supply tunggal dan dapat dihubungkan antar muka (interface) rangkaian control.

Sensor suhu LM35 mampu melakukan pengukuran suhu dari suhu -55°C hingga +150°C dengan toleransi kesalahan pengukuran ±0.5°C.

Dilihat dari tipenya range suhu dapat dilihat sebagai berikut :

- LM35, LM35A -& range pengukuran temperature -55°C hingga +150°C.
- LM35C, LM35CA -& range pengukuran temperature -40°C hingga +110°C.
- LM35D -& range pengukuran temperature 0°C hingga +100°C.

Kelebihan LM 35 :

- Rentang suhu yang jauh, antara -55 sampai +150°C
- Low self-heating, sebesar 0.08 °C
- Beroperasi pada tegangan 4 sampai 30 V

Tidak memerlukan pengkondisian sinyal

Kekurangan LM 35 :

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left; vertical-align: baseline;"><li style="border: 0px; box-sizing: border-box; font-stretch: inherit; font-style: inherit; font-variant: inherit; font-weight: inherit; line-height: 1.5; list-style-type: square; margin: 0px 0px 0.25em; padding: 0px; vertical-align: baseline;">Membutuhkan tegangan untuk beroperasi.</li></ul></div></div><div style="color: #666666; font-size: 15px; white-space-collapse: collapse;"><b>Grafik akurasi LM35 terhadap suhu</b></div><div style="color: #666666; font-size: 15px; white-space-collapse: collapse;"><div class="separator" style="clear: both;"><div class="separator" style="clear: both; font-weight: bold; text-align: center;"><br /></div></div></div><div style="color: black; text-align: justify;"><a href="https://1.bp.blogspot.com/-QYINYj4Ugng/YDKglAY0sKI/AAAAAAAAAag/kibw3bZq1GlmFe3EnTyC1hZ4-9wcUx_EACNcBGAsYHQ/s277/sensor%2Bggrafik%2Bsuhu.png" style="background: transparent; color: #2196f3; font-size: 15px; font-weight: bold; margin-left: 1em; margin-right: 1em; text-align: center; text-decoration-line: none; white-space-collapse: collapse;"></a> </div><div style="color: black; text-align: justify;"><br /></div><div style="color: black; text-align: justify;"><br /></div><div style="color: black; text-align: justify;">5. <span style="color: #292929; font-size: medium; font-weight: 700; white-space-collapse: collapse;">&nbsp;</span><span style="color: #292929; font-size: medium; font-weight: 700; white-space-collapse: collapse;">Gas Sensor ( MQ 2 )</span></div><div style="color: #292929; font-size: medium; font-weight: 700; text-align: justify; white-space-collapse: collapse;"><div style="font-weight: 400; text-align: start;"><div style="cursor: url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.ani&quot;), url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.png&quot;), auto;"><div style="cursor: url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.ani&quot;), url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.png&quot;), auto; text-align: center;"><div style="cursor: url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.ani&quot;), url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.png&quot;), auto; text-align: left;"><br style="cursor: url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.ani&quot;), url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.png&quot;), auto;" /><div style="cursor: url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.ani&quot;), url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.png&quot;), auto; text-align: center;"><div class="separator" style="clear: both; cursor: url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.ani&quot;), url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.png&quot;), auto;"><a href="https://1.bp.blogspot.com/-SauEyjYFD9M/X2t8yq5IMII/AAAAAAAAP0Y/vNYKQSSdtkcXAz43e2X9tiYVtzfcfg59gCLcBGAsYHQ/s400/GAMBAR%2BSENSOR%2BMQ2%2BYAN%2BBENAR.png" style="color: #2260bc; cursor: url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.ani&quot;), url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.png&quot;), auto; margin-left: 1em; margin-right: 1em; text-decoration-line: none;"><span style="cursor: url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.ani&quot;), url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.png&quot;), auto;"></span></a></div></div><div style="cursor: url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.ani&quot;), url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.png&quot;);, auto; text-align: center;"><span style="cursor: url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.ani&quot;), url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.png&quot;);, auto;"><br style="cursor: url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.ani&quot;), url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.png&quot;);, auto;" /></span><div style="cursor: url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.ani&quot;), url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.png&quot;);, auto; text-align: left;"><span style="cursor: url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.ani&quot;), url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.png&quot;);, auto;"><b style="cursor: url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.ani&quot;), url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.png&quot;);, auto;"><span style="cursor: url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.ani&quot;), url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.png&quot;);, auto;">Spesifikasi</span><span style="cursor: url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.ani&quot;), url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.png&quot;);, auto;">&nbsp;</span></b></span></div></div><p style="cursor: url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.ani&quot;), url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.png&quot;);, auto;"></p><p class="MsoNormal" style="background-attachment: initial; 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line-height: 18.4px;"></span></p><ul style="cursor: url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.ani&quot;),

url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.png&quot;), auto; line-height: 1.4; margin: 0.5em 0px; padding: 0px 2.5em;" type="disc"><li class="MsoNormal" style="background-attachment: initial; background-clip: initial; background-image: initial; background-origin: initial; background-position: initial; background-repeat: initial; background-size: initial; cursor: url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.ani&quot;), url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.png&quot;), auto; line-height: normal; margin: 0px 0px 0.25em; padding: 0px;"><span style="cursor: url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.ani&quot;), url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.png&quot;), auto;">Sensitivitas tinggi dengan area deteksi luas<o:p style="cursor: url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.ani&quot;), url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.png&quot;), auto;"></o:p></span></li><li class="MsoNormal" style="background-attachment: initial; background-clip: initial; background-image: initial; background-origin: initial; background-position: initial; background-repeat: initial; background-size: initial; cursor: url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.ani&quot;), url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.png&quot;), auto; line-height: normal; margin: 0px 0px 0.25em; padding: 0px;"><span style="cursor: url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.ani&quot;), url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.png&quot;), auto;">Long life<o:p style="cursor: url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.ani&quot;), url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.png&quot;), auto;"></o:p></span></li><li class="MsoNormal" style="background-attachment: initial; background-clip: initial; background-image: initial; background-origin: initial; background-position: initial; background-repeat: initial; background-size: initial; cursor: url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.ani&quot;), url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.png&quot;), auto; line-height: normal; margin: 0px 0px 0.25em; padding: 0px;"><span style="cursor: url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.ani&quot;), url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.png&quot;), auto;">Detection gas :&nbsp;LPG, i-butane, Propane, Methane, Alkohol, Hidrogen<o:p style="cursor: url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.ani&quot;), url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.png&quot;), auto;"></o:p></span></li><li class="MsoNormal" style="background-attachment: initial; background-clip: initial; background-image: initial; background-origin: initial; background-position: initial; background-repeat: initial; background-size: initial; cursor: url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.ani&quot;), url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.png&quot;), auto; line-height: normal; margin: 0px 0px 0.25em; padding: 0px;"><span style="cursor: url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.ani&quot;), url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.png&quot;), auto;">Concentration : 200 - 5000 ppm (LPG dan Propane), 300 - 5000 ppm (Butane), 5000 - 20000 ppm (Methane), 300 - 5000 ppm (Hidrogen), 100 - 2000 ppm (Alkohol)<o:p style="cursor: url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.ani&quot;), url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.png&quot;), auto;"></o:p></span></li><li class="MsoNormal" style="background-attachment: initial; background-clip: initial; background-image: initial; background-origin: initial; background-position: initial; background-repeat: initial; background-size: initial; cursor:

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url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.png&quot;), auto; line-height:  
normal; margin: 0px 0px 0.25em; padding: 0px;"><span style="cursor:  
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url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.png&quot;), auto;">Circuit Voltage  
(Vc) : 5V<o:p style="cursor:  
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url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.png&quot;),  
auto;"></o:p></span></li><li class="MsoNormal" style="background-attachment: initial;  
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url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.png&quot;), auto; line-height:  
normal; margin: 0px 0px 0.25em; padding: 0px;"><span style="cursor:  
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url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.png&quot;), auto;">Heating Voltage  
(Vh) &nbsp;&nbsp;&nbsp;: 1.4V-5V<o:p style="cursor:  
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auto;"></o:p></span></li><li class="MsoNormal" style="background-attachment: initial;  
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normal; margin: 0px 0px 0.25em; padding: 0px;"><span style="cursor:  
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url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.png&quot;), auto;">Heating Time Th  
(High) : 60s<o:p style="cursor:  
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auto;"></o:p></span></li><li class="MsoNormal" style="background-attachment: initial;  
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initial; background-repeat: initial; background-size: initial; cursor:  
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url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.png&quot;), auto; line-height:  
normal; margin: 0px 0px 0.25em; padding: 0px;"><span style="cursor:  
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(Low) : 90s<o:p style="cursor:  
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auto;"></o:p></span></li><li class="MsoNormal" style="background-attachment: initial;  
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initial; background-repeat: initial; background-size: initial; cursor:  
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normal; margin: 0px 0px 0.25em; padding: 0px;"><span style="cursor:  
url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.ani&quot;),



url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.png&quot;), auto;">Load Resistance (RL) : Adjustable<o:p style="cursor: url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.ani&quot;), url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.png&quot;), auto;"></o:p></span></li><li class="MsoNormal" style="background-attachment: initial; background-clip: initial; background-image: initial; background-origin: initial; background-position: initial; background-repeat: initial; background-size: initial; cursor: url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.ani&quot;), url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.png&quot;), auto; line-height: normal; margin: 0px 0px 0.25em; padding: 0px;"><span style="cursor: url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.ani&quot;), url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.png&quot;), auto;">Heater resistance (Rh) : 33 ohm<o:p style="cursor: url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.ani&quot;), url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.png&quot;), auto;"></o:p></span></li><li class="MsoNormal" style="background-attachment: initial; background-clip: initial; background-image: initial; background-origin: initial; background-position: initial; background-repeat: initial; background-size: initial; cursor: url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.ani&quot;), url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.png&quot;), auto; line-height: normal; margin: 0px 0px 0.25em; padding: 0px;"><span style="cursor: url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.ani&quot;), url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.png&quot;), auto;">Heater Consumption : &lt;800 mW<o:p style="cursor: url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.ani&quot;), url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.png&quot;), auto;"></o:p></span></li><li class="MsoNormal" style="background-attachment: initial; background-clip: initial; background-image: initial; background-origin: initial; background-position: initial; background-repeat: initial; background-size: initial; cursor: url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.ani&quot;), url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.png&quot;), auto; line-height: normal; margin: 0px 0px 0.25em; padding: 0px;"><span style="cursor: url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.ani&quot;), url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.png&quot;), auto;">Sensing resistance : 3K ohm - 30K ohm (pada 1000 ppm iso Butane)<o:p style="cursor: url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.ani&quot;), url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.png&quot;), auto;"></o:p></span></li><li class="MsoNormal" style="background-attachment: initial; background-clip: initial; background-image: initial; background-origin: initial; background-position: initial; background-repeat: initial; background-size: initial; cursor: url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.ani&quot;), url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.png&quot;), auto; line-height: normal; margin: 0px 0px 0.25em; padding: 0px;"><span style="cursor: url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.ani&quot;), url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.png&quot;), auto;">Preheat time : &gt;24 jam</span></li></ul></div></div></div><div style="color: #444444; margin-left: 1em; margin-right: 1em; text-align: left;"><span><br /></span></div><div style="color: #444444; margin-left: 1em; margin-right: 1em; text-align: left;"><span><br /></span></div><div style="color:

#444444; margin-left: 1em; margin-right: 1em; text-align: left;"><span><br /></span></div><div style="color: #444444; margin-left: 1em; margin-right: 1em; text-align: left;"><span>LCD</span></div><div class="separator" style="clear: both; color: #444444; text-align: center;"><span><a href="https://blogger.googleusercontent.com/img/b/R29vZ2xl/AVvXsEhweuL8wWh83E5GwrsUmqSvjwHavT3TXoq6k-zyfFnO4GgUGLhM1\_iGH3OrDEUwiw7k6q7jfo302WeK3yARHoTecxyNNHTNiGL4qvyaMWZgH43BBBXwhbOwkUY00Y7oWwbf178HAgpwXvEQaghd6w0FEWcWaSJHToGNwORM8g9hyE7nZs dRt1qOHljCzog/s630/LCD-16x2-dan-pin-out.webp" style="color: #8b2e2e; margin-left: 1em; margin-right: 1em; text-decoration-line: none;"></a></span></div><div class="separator" style="clear: both; color: #444444; text-align: left;"><span>Spesifikasi</span></div><span style="color: #444444; text-align: start;"><br /></span><div class="separator" style="clear: both; color: #444444; text-align: center;"><span><a href="https://blogger.googleusercontent.com/img/b/R29vZ2xl/AVvXsEhtmbomiULRxnTDimfgYqJa8Yy6Y5DxuBybuz8jWYDgRZ9KP5HOANn\_pFj5Bu0Q9B6OCCA8effmdbvu1EJ2x8AyHy3hq27AP3AYE2Hd9nvXWGWglBs3CxiFPyiVQ5dB-P3ebwQhree3uazzl364\_alWRM7AiCwizJrnb88hkEhRZL5y5sr12r7\_wqZl3Y/s343/WhatsApp%20Image%202023-11-22%20at%2021.23.23\_e793359a.jpg" style="color: #ff2b3d; margin-left: 1em; margin-right: 1em; text-decoration-line: none;"></a></span></div><div class="separator" style="clear: both; color: #444444; text-align: center;"><span><br /></span></div><div class="separator" style="clear: both; color: #444444; text-align: center;"><span><br /></span></div><div class="separator" style="clear: both; text-align: center; white-space-collapse: collapse;"><div style="color: #444444; text-align: start; white-space-collapse: preserve;"><span>Ground</span></div><div class="separator" style="clear: both; color: #444444; white-space-collapse: preserve;"><a href="https://blogger.googleusercontent.com/img/b/R29vZ2xl/AVvXsEjFAl-EjwB1P7-m90yg1e8dX-gCx\_3RfhT4QP7dkOvRR7xj6880Xdb7Bbba8aL8dAHZUjTlqZcz-DnqRkBe5dOU5D-b6gPHrBaWJsl14yGwY8nvWPjDeAvhPy-8w\_64YjNqtWYk-fu64bOkOsNwAudOhG7CCMuAc493w8ier4yfSljuSE3wD0anZjpxUM/s200/Picture4.png" style="color: #8b2e2e; margin-left: 1em; margin-right: 1em; text-decoration-line: none;"><span style="color: #444444;"></span></a></div><span style="color: #444444; text-align: start; white-space-collapse: preserve;"><br /></span><div style="color: #444444; text-align: start; white-space-collapse: preserve;"><span>Ground Berfungsi sebagai untuk meniadakan beda potensial dengan mengalirkan arus</span></div><div style="color: #444444; text-align: start; white-space-collapse: preserve;"><span>&nbsp;sisa dari kebocoran tegangan atau arus pada rangkaian</span></div><div style="color: #444444; text-align: start; white-space-collapse: preserve;"><span><br /></span></div><div style="color: #444444; text-align: start; white-space-collapse: preserve;"><span><br /></span></div><div style="color: #444444; text-align: start; white-space-collapse: preserve;"><span>Keypad Phone</span></div><div style="color: #444444; text-align: start; white-space-collapse: preserve;"><span><div class="separator" style="clear: both; text-align: center;"><div class="separator" style="clear: both;"><a href="https://blogger.googleusercontent.com/img/b/R29vZ2xl/AVvXsEgi8B25TvJyOIY8oe9j7A4-PG16zrDXol1G2Avr0D4T5q3hPdVJnt1sKfqcnJnB\_KWUQEXbnymQqxbMO2bQft6b6Mwga8iwrNWx4ndEdFVVyJ6Jv9A\_M5NvRXSt\_BeAw1hGnSvQE6hiORZQpOze4i1OTuRks83wH9xzma0dRkrw1OX\_o\_KTwk58a3NgO4/s526/Keypad%20phone.png" style="color: #2047af; margin-left: 1em; margin-right: 1em; text-decoration-line: none;"></a></div><br /><div class="separator" style="clear: both;"><br /></div><div class="separator" style="clear: both; text-align: left;"> Motor&nbsp;</div><div class="separator" style="clear: both; text-align: left;"><div class="separator" style="clear: both; text-align: center;"><a href="https://blogger.googleusercontent.com/img/b/R29vZ2xl/AVvXsEhJUGBhcmYp13Kz25oU\_lfrTmA96SjXjD7qU22\_wcdSxBwZmmPJGL69UBmPX3fHlh79qc3HM\_93ccCsRySeYjHrfO0I5FOMouxDOELa\_myAUNcKsUq8NvKQAFsgueX3hTkMcFjawdS\_ODM4kuZR6DnTQP8-e9F9fuBDvBFw9FN0\_gs2-YPYw20LBqoZO7E/s256/motor.png" style="color: #2047af; margin-left: 1em; margin-right: 1em; text-decoration-line: none;"></a></div> Dioda&nbsp;</div><div class="separator" style="clear: both; text-align: left;"><br /><div class="separator" style="clear: both; text-align: center;"><a href="https://blogger.googleusercontent.com/img/b/R29vZ2xl/AVvXsEi7wZ9g7LEvuTAuMN4XASOdVDEWsXekqWi8GPR4oBEYUXu9-GlZr1T9g3yhTSDG6zEcF0zwCydqHRudU\_LfZukAhr5cLXyQ9p4w-5Bbyr

[illegible]

data-original-height="77" data-original-width="146" height="133"  
src="https://blogger.googleusercontent.com/img/b/R29vZ2xl/AVvXsEiuWyen3tTKy53Pninlw2zWR6idZ5kTzm04vbfz3rFszGa4FV\_VxZQUXR-KcBv0vn65j1JmOSEYD-XmsoyqDQc79JDGNv3vD-MZwpt-01uc3BJtiWolFe7k4lHTqj3qjtOawTvzJOW2Xl1wkjMJWYtZgkwUyK5VxmZ8EjmkKEljpyc8Osc67rRst5qh48/w255-h133/logic.png" style="background-attachment: initial; background-clip: initial; background-image: initial; background-origin: initial; background-position: initial; background-repeat: initial; background-size: initial; border: 1px solid rgb(237, 237, 237); box-shadow: rgba(0, 0, 0, 0.1) 1px 1px 5px; padding: 5px; position: relative;" width="255"/>  
</a></div></div></div></div></div></span></div></div><div style="text-align: justify;"><div class="separator" style="clear: both; color: #292929; font-size: 15.4px; font-weight: 700; text-align: left; white-space-collapse: collapse;"><span style="font-size: medium;">. Voltmeter</span></div><div class="separator" style="clear: both; color: #292929; font-size: 15.4px; font-weight: 700; text-align: center; white-space-collapse: collapse;"><span style="color: black; font-size: medium;">a  
href="https://1.bp.blogspot.com/-EK5ml3BVYDk/X8dD84jPE8I/AAAAAAAAABOs/xE\_IDyAgXIQhtHh1INB-hW22d4sUKW8YACLcBGAsYHQ/s368/voltmeter.jpg" style="color: #2260bc; margin-left: 1em; margin-right: 1em; text-decoration-line: none;"><a>a  
href="https://1.bp.blogspot.com/-EK5ml3BVYDk/X8dD84jPE8I/AAAAAAAAABOs/xE\_IDyAgXIQhtHh1INB-hW22d4sUKW8YACLcBGAsYHQ/s368/voltmeter.jpg" style="color: #3474ff; margin-left: 1em; margin-right: 1em; text-decoration-line: none;"></a></span></div></div><div style="text-align: justify;"><br /></div><div style="text-align: justify;"><br /></div><div style="text-align: justify;"><br /></div><div style="text-align: justify;"><br /></div><div style="text-align: justify;"><br /></div></div></div></span></div></div>

<span><span style="background-color: white; font-family: times; font-size: medium;"><b>4. Dasar Teori</b>

<a name="dasar"></a>

<a href="#home">[Kembali]</a></span></span></div></div></div><div><span><p style="color: #292929; font-family: times; text-align: justify;"><b style="text-align: left;">a. Arduino Uno&nbsp;</b></p><div class="separator" style="clear: both; color: #292929; font-family: times; text-align: center;"><a href="https://blogger.googleusercontent.com/img/b/R29vZ2xl/AVvXsEj7CQUEgq7I4RoxxeQRsc03\_-hJwYbjyuQifSVpXLIqw5vM12kaxr-60wQ2FoHN0aGjq9eUvzoGuYO9CtcdkciPfwZp7hOKtZAFotqWYwvylW7r0d8aTVleMxMDIolbAwy-\_1hlyj\_ZuisiKl2gzee3G-QY1k-1NkTK1Fo5IRMSQLyfkGAL5CwMpQXlck/s727/arduino-uno.jpg" style="color: #2260bc; margin-left: 1em; margin-right: 1em; text-decoration-line: none;"><div class="inline-flex relative -top-[0.3rem] light font-sans text-base text-textOff
dark:text-textOffDark selection:bg-superDuper selection:text-textMain" style="--tw-border-spacing-x:
0; --tw-border-spacing-y: 0; --tw-ring-color: rgba(59,130,246,.5); --tw-ring-offset-color: #fff;
--tw-ring-offset-shadow: 0 0 #0000; --tw-ring-offset-width: 0px; --tw-ring-shadow: 0 0 #0000;
--tw-rotate: 0; --tw-scale-x: 1; --tw-scale-y: 1; --tw-scroll-snap-strictness: proximity;
--tw-shadow-colored: 0 0 #0000; --tw-shadow: 0 0 #0000; --tw-skew-x: 0; --tw-skew-y: 0;
--tw-text-opacity: 1; --tw-translate-x: 0; --tw-translate-y: 0; border: 0px solid rgb(229, 231, 235);
box-sizing: border-box; color: rgb(100 100 95/var(--tw-text-opacity)); display: inline-flex; font-family:
var(--font-fk-grotesk-neue),ui-sans-serif,system-ui,-apple-system,BlinkMacSystemFont,&quot;Segoe
UI&quot;,Roboto,Helvetica Neue,Arial,&quot;Noto Sans&quot;,sans-serif,&quot;Apple Color
Emoji&quot;,&quot;Segoe UI Emoji&quot;,&quot;Segoe UI Symbol&quot;,&quot;Noto Color
Emoji&quot;; font-size: 1rem; line-height: 1.5rem; position: relative; top: -0.3rem;"><span
class="text-[0.60rem]" style="--tw-border-spacing-x: 0; --tw-border-spacing-y: 0; --tw-ring-color:
rgba(59,130,246,.5); --tw-ring-offset-color: #fff; --tw-ring-offset-shadow: 0 0 #0000;
--tw-ring-offset-width: 0px; --tw-ring-shadow: 0 0 #0000; --tw-rotate: 0; --tw-scale-x: 1; --tw-scale-y:
1; --tw-scroll-snap-strictness: proximity; --tw-shadow-colored: 0 0 #0000; --tw-shadow: 0 0 #0000;
--tw-skew-x: 0; --tw-skew-y: 0; --tw-translate-x: 0; --tw-translate-y: 0; border: 0px solid rgb(229, 231,
235); box-sizing: border-box; display: inline; font-size: 0.6rem;"><span style="--tw-border-spacing-x:
0; --tw-border-spacing-y: 0; --tw-ring-color: rgba(59,130,246,.5); --tw-ring-offset-color: #fff;
--tw-ring-offset-shadow: 0 0 #0000; --tw-ring-offset-width: 0px; --tw-ring-shadow: 0 0 #0000;
--tw-rotate: 0; --tw-scale-x: 1; --tw-scale-y: 1; --tw-scroll-snap-strictness: proximity;
--tw-shadow-colored: 0 0 #0000; --tw-shadow: 0 0 #0000; --tw-skew-x: 0; --tw-skew-y: 0;
--tw-translate-x: 0; --tw-translate-y: 0; border: 0px solid rgb(229, 231, 235); box-sizing: border-box;
color: #13343b; font-size: 16px;">Pada Proteus, fungsi input/output pada pin dapat diatur
menggunakan instruksi pinMode(), digitalRead(), dan
digitalWrite()</span></div></a></div><span face="__fkGroteskNeue_532e43,
__fkGroteskNeue_Fallback_532e43, ui-sans-serif, system-ui, -apple-system, BlinkMacSystemFont,
&quot;Segoe UI&quot;, Roboto, &quot;Helvetica Neue&quot;, Arial, &quot;Noto Sans&quot;,
sans-serif, &quot;Apple Color Emoji&quot;, &quot;Segoe UI Emoji&quot;, &quot;Segoe UI
Symbol&quot;, &quot;Noto Color Emoji&quot;" style="--tw-border-spacing-x: 0;
--tw-border-spacing-y: 0; --tw-ring-color: rgba(59,130,246,.5); --tw-ring-offset-color: #fff;
--tw-ring-offset-shadow: 0 0 #0000; --tw-ring-offset-width: 0px; --tw-ring-shadow: 0 0 #0000;
--tw-rotate: 0; --tw-scale-x: 1; --tw-scale-y: 1; --tw-scroll-snap-strictness: proximity;
--tw-shadow-colored: 0 0 #0000; --tw-shadow: 0 0 #0000; --tw-skew-x: 0; --tw-skew-y: 0;
--tw-translate-x: 0; --tw-translate-y: 0; background-color: #fcfcf9; border: 0px solid rgb(229, 231,
235); box-sizing: border-box; color: #13343b; font-size: 16px;"><span class="whitespace-nowrap"
style="--tw-border-spacing-x: 0; --tw-border-spacing-y: 0; --tw-ring-color: rgba(59,130,246,.5);
--tw-ring-offset-color: #fff; --tw-ring-offset-shadow: 0 0 #0000; --tw-ring-offset-width: 0px;

```

```

--tw-ring-shadow: 0 0 #0000; --tw-rotate: 0; --tw-scale-x: 1; --tw-scale-y: 1; --tw-scroll-snap-strictness:
proximity; --tw-shadow-colored: 0 0 #0000; --tw-shadow: 0 0 #0000; --tw-skew-x: 0; --tw-skew-y: 0;
--tw-translate-x: 0; --tw-translate-y: 0; border: 0px solid rgb(229, 231, 235); box-sizing: border-box;
text-wrap: nowrap;"><div class="inline-flex relative -top-[0.3rem] light font-sans text-base
text-textOff dark:text-textOffDark selection:bg-superDuper selection:text-textMain"
style="--tw-border-spacing-x: 0; --tw-border-spacing-y: 0; --tw-ring-color: rgba(59,130,246,.5);
--tw-ring-offset-color: #fff; --tw-ring-offset-shadow: 0 0 #0000; --tw-ring-offset-width: 0px;
--tw-ring-shadow: 0 0 #0000; --tw-rotate: 0; --tw-scale-x: 1; --tw-scale-y: 1; --tw-scroll-snap-strictness:
proximity; --tw-shadow-colored: 0 0 #0000; --tw-shadow: 0 0 #0000; --tw-skew-x: 0; --tw-skew-y: 0;
--tw-text-opacity: 1; --tw-translate-x: 0; --tw-translate-y: 0; border: 0px solid rgb(229, 231, 235);
box-sizing: border-box; color: rgb(100 100 95/var(--tw-text-opacity)); display: inline-flex; font-family:
var(--font-fk-grotesk-neue),ui-sans-serif,system-ui,-apple-system,BlinkMacSystemFont,&quot;Segoe
UI&quot;,Roboto,Helvetica Neue,Arial,&quot;Noto Sans&quot;,sans-serif,&quot;Apple Color
Emoji&quot;,&quot;Segoe UI Emoji&quot;,&quot;Segoe UI Symbol&quot;,&quot;Noto Color
Emoji&quot;; font-size: 1rem; line-height: 1.5rem; margin-left: 4px; position: relative;
text-decoration-line: none; top: -0.3rem;"><span class="text-[0.60rem]"
style="--tw-border-spacing-x: 0; --tw-border-spacing-y: 0; --tw-ring-color: rgba(59,130,246,.5);
--tw-ring-offset-color: #fff; --tw-ring-offset-shadow: 0 0 #0000; --tw-ring-offset-width: 0px;
--tw-ring-shadow: 0 0 #0000; --tw-rotate: 0; --tw-scale-x: 1; --tw-scale-y: 1; --tw-scroll-snap-strictness:
proximity; --tw-shadow-colored: 0 0 #0000; --tw-shadow: 0 0 #0000; --tw-skew-x: 0; --tw-skew-y: 0;
--tw-translate-x: 0; --tw-translate-y: 0; border: 0px solid rgb(229, 231, 235); box-sizing: border-box;
font-size: 0.6rem;"><br /></span></div></span></span><div class="separator" style="clear: both;
color: #292929; font-family: times;">- PB4/MISO :&nbsp;<span face="__fkGroteskNeue_532e43,
__fkGroteskNeue_Fallback_532e43, ui-sans-serif, system-ui, -apple-system, BlinkMacSystemFont,
&quot;Segoe UI&quot;, Roboto, &quot;Helvetica Neue&quot;, Arial, &quot;Noto Sans&quot;,
sans-serif, &quot;Apple Color Emoji&quot;, &quot;Segoe UI Emoji&quot;, &quot;Segoe UI
Symbol&quot;, &quot;Noto Color Emoji&quot;" style="background-color: #fcfcf9; color: #13343b;
font-size: 16px;">Pin PB4/MISO pada Proteus adalah salah satu pin pada PORTB yang digunakan
sebagai input/output digital pada Arduino Uno. Fungsinya adalah sebagai pin input untuk komunikasi
serial pada mode SPI (Serial Peripheral Interface </span><a class="citation ml-xs inline"
href="http://eprints.polsri.ac.id/4383/3/File%20III.pdf" rel="noopener noreferrer"
style="--tw-border-spacing-x: 0; --tw-border-spacing-y: 0; --tw-ring-color: rgba(59,130,246,.5);
--tw-ring-offset-color: #fff; --tw-ring-offset-shadow: 0 0 #0000; --tw-ring-offset-width: 0px;
--tw-ring-shadow: 0 0 #0000; --tw-rotate: 0; --tw-scale-x: 1; --tw-scale-y: 1; --tw-scroll-snap-strictness:
proximity; --tw-shadow-colored: 0 0 #0000; --tw-shadow: 0 0 #0000; --tw-skew-x: 0; --tw-skew-y: 0;
--tw-translate-x: 0; --tw-translate-y: 0; background-color: #fcfcf9; border: 0px solid rgb(229, 231,
235); box-sizing: border-box; display: inline; font-family:
var(--font-fk-grotesk-neue),ui-sans-serif,system-ui,-apple-system,BlinkMacSystemFont,&quot;Segoe
UI&quot;,Roboto,Helvetica Neue,Arial,&quot;Noto Sans&quot;,sans-serif,&quot;Apple Color
Emoji&quot;,&quot;Segoe UI Emoji&quot;,&quot;Segoe UI Symbol&quot;,&quot;Noto Color
Emoji&quot;; font-size: 16px; margin-left: 4px; text-decoration-line: none; text-wrap: nowrap;"
target="_blank"><span style="color: #13343b;">Pada Proteus, fungsi input/output pada pin dapat
diatur menggunakan instruksi pinMode(), digitalRead(), dan digitalWrite()</span></a></div><div
class="separator" style="clear: both; color: #292929; font-family: times;"><br /></div><div
class="separator" style="clear: both; color: #292929; font-family: times;"><div class="separator"
style="clear: both; text-align: center;"><a
href="https://blogger.googleusercontent.com/img/a/AVvXsEjLU4Qql2ppxzR7HXRUL8bXKyFrXR_jOmj
A-PkT4zTXbcApNTWpWkmqV8lUvGoR6klPbbF5qAmTLJ3SvYdsWHSgm3xaB0r9vSLhp6-wD5aqyPewPJ

```


zkSQxF9hPujvqN8tBUrNV-Bn-GirFzFmYHN9f5gEZY49q1y6qMR9ujx6LwHCB49dDyG550Q3jDABw" style="margin-left: 1em; margin-right: 1em;"></div>
</div><div class="separator" style="clear: both; color: #292929; font-family: times;">
</div><div class="separator" style="clear: both; color: #292929; font-family: times;">
</div><div class="separator" style="clear: both; color: #292929; font-family: times;"> PB/OC : Fungsinya adalah sebagai pin output PWM (Pulse Width Modulation) yang dapat menghasilkan sinyal gelombang dengan lebar pulsa yang dapat diatur Pada Proteus, fungsi input/output pada pin dapat diatur menggunakan instruksi pinMode(), digitalRead(), dan digitalWrite(<span

face="var(--font-fk-grotesk-neue),ui-sans-serif,system-ui,-apple-system,BlinkMacSystemFont,"Segoe UI","Roboto,Helvetica Neue,Arial,"Noto Sans","sans-serif,"Apple Color Emoji","Segoe UI Emoji","Segoe UI Symbol","Noto Color Emoji"" style="color: #13343b; font-size: 16px; text-align: left;">Pin PB1/OC1A pada Arduino Uno dapat digunakan sebagai output PWM dengan menggunakan instruksi

```
analogWrite()
```

[!\[\]\(https://blogger.googleusercontent.com/img/a/AVvXsEjiDK_DQ6dW4_9eGEt6Jwm76lZRvbBFYa01qB1A2iw0AAIPU_1Qcen9G2Y5f6Qero4Wx0dDuLo2i4z3YOoXHpqRoxu-1Imp8uHFPZ5X3rl8mVcydESr8g-gDCsr0HkRBuevnZ5XUt-yuziPPYdVJHpJ9kbhK3JWMrx5pkz7uzIW2_VUPy7o4UDHtkdEw\)](https://blogger.googleusercontent.com/img/a/AVvXsEjiDK_DQ6dW4_9eGEt6Jwm76lZRvbBFYa01qB1A2iw0AAIPU_1Qcen9G2Y5f6Qero4Wx0dDuLo2i4z3YOoXHpqRoxu-1Imp8uHFPZ5X3rl8mVcydESr8g-gDCsr0HkRBuevnZ5XUt-yuziPPYdVJHpJ9kbhK3JWMrx5pkz7uzIW2_VUPy7o4UDHtkdEw)

[!\[\]\(https://blogger.googleusercontent.com/img/b/R29vZ2xl/AVvXsEgPOAcfnXpQj7BWMpMe-xqcjO5z3NalbtPE5qp2iR_bY1N_NIY27yr5WJaJhANQ4HxLDHYDoQgUDmgPaEvSpPsXUOAD3aRuQCFi8zyoXFiCFEdC7-w5Xf4QgKBRAwzcVnJTU51qOn9camR4ZvtcHKvI8zUGbyfZhXHc6SOMZ5VmcjiYPv5KhYM5xOkE/s320/tabel%20res.jpg\)](https://blogger.googleusercontent.com/img/b/R29vZ2xl/AVvXsEgPOAcfnXpQj7BWMpMe-xqcjO5z3NalbtPE5qp2iR_bY1N_NIY27yr5WJaJhANQ4HxLDHYDoQgUDmgPaEvSpPsXUOAD3aRuQCFi8zyoXFiCFEdC7-w5Xf4QgKBRAwzcVnJTU51qOn9camR4ZvtcHKvI8zUGbyfZhXHc6SOMZ5VmcjiYPv5KhYM5xOkE/s411/tabel%20res.jpg)

Resistor

style="text-align: justify; "> merupakan salah satu komponen yang digunakan dalam sebuah sirkuit atau rangkaian elektronik. Resistor berfungsi sebagai resistansi/ hambatan yang mampu mengatur atau mengendalikan tegangan dan arus listrik rangkaian. Resistor mempunyai nilai resistansi (tahanan) tertentu yang dapat memproduksi tegangan listrik di antara kedua pin dimana nilai tegangan terhadap resistansi tersebut berbanding lurus dengan arus yang mengalir, berdasarkan persamaan hukum Ohm :</div><div class="separator" style="clear: both;"><div style="text-align: center;"><div class="separator" style="clear: both;"></div>
<div class="separator" style="clear: both;"></div>

</div><div class="separator" style="clear: both; text-align: center;"></div><div class="separator" style="clear: both; text-align: center;">
</div><div class="separator" style="clear: both;">c. Power Supply</div><div class="separator" style="clear: both;">Vcc berfungsi untuk memberikan tegangan kepada input, dimana disini diberikan kepada switch.</div><div class="separator" style="clear: both; text-align: center;">

/></div><div class="separator" style="clear: both; text-align: center;"><div class="separator" style="clear: both;"></div>
<div

url("https://ani.cursors-4u.net/games/gam-16/gam1571.ani"),
url("https://ani.cursors-4u.net/games/gam-16/gam1571.png"), auto; font-weight: 700; text-align: left;"><span style="cursor:

url("https://ani.cursors-4u.net/games/gam-16/gam1571.ani"),
url("https://ani.cursors-4u.net/games/gam-16/gam1571.png"), auto; font-weight: 400; text-align: justify;">Sensor Infrared adalah komponen elektronika yang dapat mendeteksi benda

ketika cahaya infra merah terhalangi oleh benda. Sensor infared terdiri dari led infrared sebagai pemancar sedangkan pada bagian penerima biasanya terdapat foto transistor, fotodioda, atau inframerah modul yang berfungsi untuk menerima sinar inframerah yang dikirimkan oleh pemancar. Sensor infrared memiliki simbol seperti gambar di bawah ini :</div><div style="cursor:

url("https://ani.cursors-4u.net/games/gam-16/gam1571.ani"),
url("https://ani.cursors-4u.net/games/gam-16/gam1571.png"), auto; font-weight: 700; text-align: center;"><span style="cursor:

url("https://ani.cursors-4u.net/games/gam-16/gam1571.ani"),
url("https://ani.cursors-4u.net/games/gam-16/gam1571.png"), auto; text-align: justify;"><div class="separator" style="clear: both; cursor:

url("https://ani.cursors-4u.net/games/gam-16/gam1571.ani"),
url("https://ani.cursors-4u.net/games/gam-16/gam1571.png"), auto; font-weight: 400; text-align: center;"><a

href="https://1.bp.blogspot.com/-qrL9PHyTE_M/X3TYnoSD3WI/AAAAAAAAAP_4/GW1RwKvdfYoX6GVb8Y6r7YNFDKHOTL0kgCLcBGAsYHQ/s255/GAMBAR%2BSENSOR%2BINFRARED.JPG" style="color: #2260bc; cursor: url("https://ani.cursors-4u.net/games/gam-16/gam1571.ani"), url("https://ani.cursors-4u.net/games/gam-16/gam1571.png"), auto; margin-left: 1em;

margin-right: 1em; text-decoration-line: none;"></div><br style="cursor: url("https://ani.cursors-4u.net/games/gam-16/gam1571.ani"), url("https://ani.cursors-4u.net/games/gam-16/gam1571.png"), auto;" /><div style="cursor: url("https://ani.cursors-4u.net/games/gam-16/gam1571.ani"), url("https://ani.cursors-4u.net/games/gam-16/gam1571.png"), auto; text-align: left;"><br style="cursor: url("https://ani.cursors-4u.net/games/gam-16/gam1571.ani"), url("https://ani.cursors-4u.net/games/gam-16/gam1571.png"), auto;" /></div></div><div style="cursor: url("https://ani.cursors-4u.net/games/gam-16/gam1571.ani"), url("https://ani.cursors-4u.net/games/gam-16/gam1571.png"), auto; font-weight: 700; text-align: left;"><div class="MsoNormal" style="cursor: url("https://ani.cursors-4u.net/games/gam-16/gam1571.ani"), url("https://ani.cursors-4u.net/games/gam-16/gam1571.png"), auto; font-weight: 400; line-height: normal; margin-bottom: 0cm; text-align: justify;"><b style="cursor: url("https://ani.cursors-4u.net/games/gam-16/gam1571.ani"), url("https://ani.cursors-4u.net/games/gam-16/gam1571.png"), auto;">Prinsip Kerja Sensor Infrared</div> <br style="cursor: url("https://ani.cursors-4u.net/games/gam-16/gam1571.ani"), url("https://ani.cursors-4u.net/games/gam-16/gam1571.png"), auto; font-weight: 400;" /><br style="cursor: url("https://ani.cursors-4u.net/games/gam-16/gam1571.ani"), url("https://ani.cursors-4u.net/games/gam-16/gam1571.png"), auto; font-weight: 400;" /><div class="MsoListParagraph" style="cursor: url("https://ani.cursors-4u.net/games/gam-16/gam1571.ani"), url("https://ani.cursors-4u.net/games/gam-16/gam1571.png"), auto; font-weight: 400; line-height: normal; margin-bottom: 0cm; text-align: justify;"><br style="cursor: url("https://ani.cursors-4u.net/games/gam-16/gam1571.ani"), url("https://ani.cursors-4u.net/games/gam-16/gam1571.png"), auto;" /></div><div class="separator" style="clear: both; cursor:

```

url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.ani&quot;),
url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.png&quot;), auto; font-weight: 400;
text-align: center;"><a
href="https://1.bp.blogspot.com/-uWW-5UJAPTo/Xb8EeljKiBI/AAAAAAAAAYZw/7WU7KUKKm8soxzq-L
rgYGLbWVPLboPYGgCLcBGAsYHQ/s1600/sensor1.jpg" style="color: #2260bc; cursor:
url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.ani&quot;),
url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.png&quot;), auto; margin-left: 1em;
margin-right: 1em; text-decoration-line: none;"><span style="cursor:
url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.ani&quot;),
url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.png&quot;), auto;"></span></a></div><div class="MsoNormal" style="cursor:
url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.ani&quot;),
url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.png&quot;), auto; font-weight: 400;
line-height: normal; margin-bottom: 0cm;"><span style="cursor:
url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.ani&quot;),
url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.png&quot;), auto;"><br style="cursor:
url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.ani&quot;),
url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.png&quot;), auto;" /></span><div
style="cursor: url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.ani&quot;),
url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.png&quot;), auto; text-align:
center;"><span style="background-attachment: initial; background-clip: initial; background-image:
initial; background-origin: initial; background-position: initial; background-repeat: initial;
background-size: initial; cursor:
url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.ani&quot;),
url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.png&quot;), auto;"><span
style="cursor: url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.ani&quot;),
url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.png&quot;), auto; line-height:
18.4px;">Gambar 1. Ilustrasi prinsip kerja sensor infrared</span></span></div></div><div
class="MsoNormal" style="cursor:
url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.ani&quot;),
url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.png&quot;), auto; font-weight: 400;
line-height: normal; margin-bottom: 0cm;"><span style="cursor:
url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.ani&quot;),
url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.png&quot;), auto;"><br style="cursor:
url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.ani&quot;),
url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.png&quot;), auto;"
/></span></div><div class="MsoNormal" style="cursor:
url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.ani&quot;),
url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.png&quot;), auto; font-weight: 400;
line-height: normal; margin-bottom: 0cm;"><span style="cursor:
url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.ani&quot;),
url(&quot;https://ani.cursors-4u.net/games/gam-16/gam1571.png&quot;), auto;"><span

```

style="background-attachment: initial; background-clip: initial; background-image: initial; background-origin: initial; background-position: initial; background-repeat: initial; background-size: initial; cursor: url("https://ani.cursors-4u.net/games/gam-16/gam1571.ani"), url("https://ani.cursors-4u.net/games/gam-16/gam1571.png"), auto;"/>Ketika pemancar IR memancarkan radiasi, ia mencapai objek dan beberapa radiasi memantulkan kembali ke penerima IR. Berdasarkan intensitas penerimaan oleh penerima IR, output dari sensor ditentukan.

url("https://ani.cursors-4u.net/games/gam-16/gam1571.ani"), url("https://ani.cursors-4u.net/games/gam-16/gam1571.png"), auto;"/>
url("https://ani.cursors-4u.net/games/gam-16/gam1571.ani"), url("https://ani.cursors-4u.net/games/gam-16/gam1571.png"), auto; font-weight: 400;"/>

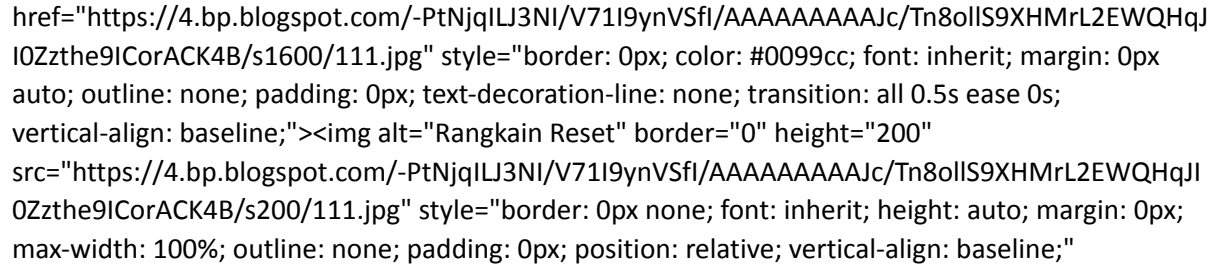
[!\[\]\(https://1.bp.blogspot.com/-KCT2snrt3mE/Xb8EeCTh6rI/AAAAAAAAAYZo/Ljl2aza_kj8SA9baptRK7pWu1rZ0X396ACEwYBhgL/s320/sensor%2B2.JPG\)](https://1.bp.blogspot.com/-KCT2snrt3mE/Xb8EeCTh6rI/AAAAAAAAAYZo/Ljl2aza_kj8SA9baptRK7pWu1rZ0X396ACEwYBhgL/s1600/sensor%2B2.JPG)

Gambar 2. Rangkaian dasar sensor infrared common emitter yang menggunakan led infrared dan fototransistor

url("https://ani.cursors-4u.net/games/gam-16/gam1571.png"), auto;"><br style="cursor:
url("https://ani.cursors-4u.net/games/gam-16/gam1571.ani"),
url("https://ani.cursors-4u.net/games/gam-16/gam1571.png"), auto;"
</div></div><div style="cursor:
url("https://ani.cursors-4u.net/games/gam-16/gam1571.ani"),
url("https://ani.cursors-4u.net/games/gam-16/gam1571.png"), auto; text-align:
left;"><div class="MsoNormal" style="cursor:
url("https://ani.cursors-4u.net/games/gam-16/gam1571.ani"),
url("https://ani.cursors-4u.net/games/gam-16/gam1571.png"), auto; line-height:
normal; margin-bottom: 0cm; text-align: justify;"><span style="cursor:
url("https://ani.cursors-4u.net/games/gam-16/gam1571.ani"),
url("https://ani.cursors-4u.net/games/gam-16/gam1571.png"), auto;"><b style="cursor:
url("https://ani.cursors-4u.net/games/gam-16/gam1571.ani"),
url("https://ani.cursors-4u.net/games/gam-16/gam1571.png"), auto;">Grafik Respon
Sensor Infrared</div><span style="cursor:
url("https://ani.cursors-4u.net/games/gam-16/gam1571.ani"),
url("https://ani.cursors-4u.net/games/gam-16/gam1571.png"), auto; font-weight:
700;"><span style="cursor:
url("https://ani.cursors-4u.net/games/gam-16/gam1571.ani"),
url("https://ani.cursors-4u.net/games/gam-16/gam1571.png"), auto; font-weight:
400;"> <br style="cursor:
url("https://ani.cursors-4u.net/games/gam-16/gam1571.ani"),
url("https://ani.cursors-4u.net/games/gam-16/gam1571.png"), auto; font-weight: 400;"
<div class="separator" style="clear: both; cursor:
url("https://ani.cursors-4u.net/games/gam-16/gam1571.ani"),
url("https://ani.cursors-4u.net/games/gam-16/gam1571.png"), auto; text-align:
center;"><a
href="https://1.bp.blogspot.com/-OyB3cfZWUt8/Xb8Ehc4O9XI/AAAAAAAAAYZ4/9i4NFxuj0X410vgOly
aOzLgbXlb84JXSQCEwYBhgL/s1600/sensor4.JPG" style="color: #2260bc; cursor:
url("https://ani.cursors-4u.net/games/gam-16/gam1571.ani"),
url("https://ani.cursors-4u.net/games/gam-16/gam1571.png"), auto; margin-left: 1em;
margin-right: 1em; text-decoration-line: none;"><span style="cursor:
url("https://ani.cursors-4u.net/games/gam-16/gam1571.ani"),
url("https://ani.cursors-4u.net/games/gam-16/gam1571.png"), auto;"></div><div class="MsoNormal"
style="background-attachment: initial; background-clip: initial; background-image: initial;
background-origin: initial; background-position: initial; background-repeat: initial; background-size:
initial; cursor: url("https://ani.cursors-4u.net/games/gam-16/gam1571.ani"),
url("https://ani.cursors-4u.net/games/gam-16/gam1571.png"), auto; line-height:
normal; margin-bottom: 0cm; text-align: justify;"><div style="cursor:
url("https://ani.cursors-4u.net/games/gam-16/gam1571.ani"),
url("https://ani.cursors-4u.net/games/gam-16/gam1571.png"), auto; text-align:

center;">Gambar 4. Grafik respon sensor infrared</div><br style="cursor: url("https://ani.cursors-4u.net/games/gam-16/gam1571.ani"), url("https://ani.cursors-4u.net/games/gam-16/gam1571.png"), auto;" />Grafik menunjukkan hubungan antara resistansi dan jarak potensial untuk sensitivitas rentang antara pemancar dan penerima inframerah. Resistor yang digunakan pada sensor mempengaruhi intensitas cahaya inframerah keluar dari pemancar. Semakin tinggi resistansi yang digunakan, semakin pendek jarak IR Receiver yang mampu mendeteksi sinar IR yang dipancarkan dari IR Transmitter karena intensitas cahaya yang lebih rendah dari IR Transmitter. Sementara semakin rendah resistansi yang digunakan, semakin jauh jarak IR Receiver mampu mendeteksi sinar IR yang dipancarkan dari IR Transmitter karena intensitas cahaya yang lebih tinggi dari IR Transmitter.</div></div></div><div style="margin-left: 1em; margin-right: 1em; text-align: center;"><div class="separator" style="clear: both;"><div class="separator" style="clear: both; font-weight: 700;">
</div></div><div style="margin-left: 1em; margin-right: 1em; text-align: center;">
</div><div style="font-weight: 700; margin-left: 1em; margin-right: 1em; text-align: center;">
</div><div style="margin-left: 1em; margin-right: 1em;"><div class="separator" style="clear: both;">e. Jumper</div><div class="separator" style="clear: both; text-align: center;"></div><div class="separator" style="clear: both;">Kabel jumper adalah suatu istilah kabel yang ber-diameter kecil yang di dalam dunia elektronika digunakan untuk menghubungkan dua titik atau lebih dan dapat juga untuk menghubungkan 2 komponen elektronika. Kabel jumper jenis ini digunakan untuk koneksi male to male pada kedua ujung kabelnya.</div><div class="separator" style="clear: both;">
</div><div class="separator" style="clear: both;">f. LED</div><div class="separator" style="clear: both; text-align: center;"><div class="separator" style="clear: both; text-align: center;"></div><div class="separator" style="clear: both; text-align: justify;"><div style="cursor: url("https://ani.cursors-4u.net/games/gam-16/gam1571.ani"), url("https://ani.cursors-4u.net/games/gam-16/gam1571.png"), auto; text-align: start;">LED merupakan singkatan dari Light Emitting Diode, merupakan salah satu perangkat semikonduktor yang mengeluarkan cahaya ketika arus listrik melewatinya, dan digunakan sebagai indikator keluaran (output). <br style="cursor: url("https://ani.cursors-4u.net/games/gam-16/gam1571.ani"), url("https://ani.cursors-4u.net/games/gam-16/gam1571.png"), auto;" /></div><div style="cursor: url("https://ani.cursors-4u.net/games/gam-16/gam1571.ani"), url("https://ani.cursors-4u.net/games/gam-16/gam1571.png"), auto; text-align: start;"><p style="clear: both; outline: 0px; text-align: justify; transition: all 0.3s ease 0s;">Tegangan LED menurut warna yang dihasilkan:</p><p class="MsoListParagraphCxSpFirst" style="margin-left: 1in; outline: 0px; text-indent: -0.25in; transition: all 0.3s ease 0s;"><p><ul style="line-height: 1.4; list-style: none; margin: 0.5em 0px; outline: 0px; padding: 0px 2.5em; transition: all 0.3s ease 0s;"><ul style="line-height: 1.4; list-style: disc; margin: 0.5em 0px; outline: 0px; padding: 0px 2.5em; transition: all 0.3s ease 0s;"><li style="border: none; line-height: 1.5; list-style: none; margin: 0px 0px 0.25em; outline: 0px; padding: 0px; transition: all 0.3s ease 0s;">Infra merah : 1,6 V.<li style="border: none; line-height: 1.5; list-style: none; margin: 0px 0px 0.25em; outline: 0px; padding: 0px; transition: all 0.3s ease 0s;">Merah : 1,8 V – 2,1 V.<li style="border: none; line-height: 1.5; list-style: none; margin: 0px 0px 0.25em; outline: 0px; padding: 0px; transition: all 0.3s ease 0s;">Oranye : 2,2 V.<li style="border: none; line-height: 1.5; list-style: none; margin: 0px 0px 0.25em; outline: 0px; padding: 0px; transition: all 0.3s ease 0s;">Kuning : 2,4 V.<li style="border: none; line-height: 1.5; list-style: none; margin: 0px 0px 0.25em; outline: 0px; padding: 0px; transition: all 0.3s ease 0s;">Hijau : 2,6 V.<li style="border: none; line-height: 1.5; list-style: none; margin: 0px 0px 0.25em; outline: 0px; padding: 0px; transition: all 0.3s ease 0s;">Biru : 3,0 V – 3,5 V.<li style="border: none; line-height: 1.5; list-style: none; margin: 0px 0px 0.25em; outline: 0px; padding: 0px; transition: all 0.3s ease 0s;">Putih : 3,0 – 3,6 V.<li style="border: none; line-height: 1.5; list-style: none; margin: 0px 0px 0.25em; outline: 0px; padding: 0px; transition: all 0.3s ease 0s;">Ultraviolet : 3,5 V.</div></div></div></div></div></div></div><div><div style="background-color: white; color: #222222; font-size: 15.84px; text-align: justify;">g. Rangkaian Reset</div><div style="background-color: white; color: #222222; font-size: 15.84px; text-align: justify;">
</div><div style="background-color: white; color: #222222; font-size: 15.84px; text-align: justify;"><br style="color: #666666; font-family: Arial, sans-serif; font-size: 13px; margin: 0px; padding: 0px;"></div></div>

Mikrokontroler menggunakan rangkaian reset. Rangkaian power on reset terdiri dari resistor 4,7K Ω dan tombol untuk penekanan reset secara manual yang diparalel dengan kapasitor 10nF.

	
Rangkaian Reset	

Komunikasi UART (Universal Asynchronous Receiver Transmitter) adalah metode komunikasi data secara serial antara dua perangkat. Komunikasi serial berarti data dikirim satu bit demi satu bit, satu per satu. Arduino Uno memiliki satu antarmuka UART yang terletak pada pin 0 (RX) dan pin 1 (TX). Pin RX digunakan untuk menerima data dari perangkat lain, sedangkan pin TX digunakan untuk mengirim data ke perangkat lain. Untuk menggunakan komunikasi UART pada Arduino Uno, Anda perlu menghubungkan pin RX dan TX Arduino Uno ke pin RX dan TX perangkat lain. Setelah itu, Anda perlu

menginisialisasi komunikasi serial di kedua perangkat.

Komunikasi UART dapat digunakan untuk berbagai keperluan, seperti:

- Menghubungkan Arduino Uno ke komputer untuk mengirim dan menerima data.
- Menghubungkan Arduino Uno ke sensor atau perangkat lain.
- Menghubungkan Arduino Uno ke jaringan komputer.

Pin RX dan TX adalah pin yang digunakan untuk komunikasi serial pada Arduino Uno. Pin RX digunakan untuk menerima data dari perangkat lain, sedangkan pin TX digunakan untuk mengirim data ke perangkat lain.

Pin RX dan TX menggunakan level tegangan logic 5V atau 3.3V, sesuai dengan hardware yang digunakan. Jika berbeda tensanganya kalian dapat menggunakan rangkaian pembagi tegangan (voltage divider) atau level converter.

Berikut adalah fungsi pin RX dan TX secara lebih detail:

- Pin RX
 - Mengirim data ke Arduino Uno dari perangkat lain.
 - Data yang dikirim ke Arduino Uno akan diinterpretasikan sebagai data biner.
 - Data biner tersebut dapat berupa karakter, angka, atau data lainnya.
- Pin TX
 - Mengirim data dari Arduino Uno ke perangkat lain.
 - Data yang dikirim dari Arduino Uno harus berupa data biner.
 - Data biner tersebut dapat berupa karakter, angka, atau data lainnya.

5. Percobaan

[Kembali]

a. Prosedur

name="prosedur" style="font-size: large;"/>[Kembali]</div><div>
</div><div><div class="separator" style="background-color: white; clear: both; color: #292929; font-size: 15.4px; text-align: justify;"/>1. Siapkan komponen yang diperlukan</div><div class="separator" style="background-color: white; clear: both; color: #292929; font-size: 15.4px; text-align: justify;"/>2. Susunlah rangkaian sesuai dngan panduan</div><div class="separator" style="background-color: white; clear: both; color: #292929; font-size: 15.4px; text-align: justify;"/>3. Inputkan codingan pada software arduino IDE</div><div class="separator" style="background-color: white; clear: both; color: #292929; font-size: 15.4px; text-align: justify;"/>4. Running rangkaian </div></div><div class="separator" style="background-color: white; clear: both; color: #292929; font-size: 15.4px; text-align: justify;"/>
</div><div><b style="background-color: white; font-size: large;"/> b. Hardware[Kembali]</div></div><div><div style="background-color: white; font-family: Arial, Tahoma, Helvetica, FreeSans, sans-serif;"/> Hardware :</div><div style="background-color: white; font-family: Arial, Tahoma, Helvetica, FreeSans, sans-serif;"/><div style="color: #292929; font-weight: 400;"/><li style="margin: 0px 0px 0.25em; padding: 0px;"/>Arduino Uno<li style="margin: 0px 0px 0.25em; padding: 0px;"/>PIR Sensor<li style="margin: 0px 0px 0.25em; padding: 0px;"/>Flame Sensor<li style="margin: 0px 0px 0.25em; padding: 0px;"/>Infrared Sensor<li style="margin: 0px 0px 0.25em; padding: 0px;"/>UV Sensor<li style="margin: 0px 0px 0.25em; padding: 0px;"/>Sensor MQ 2<li style="margin: 0px 0px 0.25em; padding: 0px;"/>sensor LM 35<li style="margin: 0px 0px 0.25em; padding: 0px;"/>LED<li style="margin: 0px 0px 0.25em; padding: 0px;"/>Relay<li style="margin: 0px 0px 0.25em; padding: 0px;"/>Dioda<li style="margin: 0px 0px 0.25em; padding: 0px;"/>Logic State<li style="margin: 0px 0px 0.25em; padding: 0px;"/>Switch</div></div><div>
</div><p> <b style="font-size: large;"/>c. Rangkaian Simulasi, Flowchart dan Prinsip Kerja[Kembali] </p><div class="separator" style="clear: both; text-align: center;"/></div>
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style="clear: both; text-align: center;"/>

style="border: none; margin: 0px 0px 0px 40px; padding: 0px;"/>**Prinsip Kerja**


```
//variabel  
int ribuan, ratusan, puluhan, satuan;  
int yy;  
int counter = 0;  
int i = 0;  
int o = 0;
```

```
void setup() {  
    //untuk memulai serial monitor  
    Serial.begin(9600);
```

```
    //Deklarasi pinMode  
    pinMode(infrared, INPUT);  
    pinMode(pir, INPUT);  
    pinMode(mq, INPUT);  
    pinMode(suhu, INPUT);  
    pinMode(uv, INPUT);  
    pinMode(A, OUTPUT);  
    pinMode(B, OUTPUT);  
    pinMode(c, OUTPUT);  
    pinMode(d, OUTPUT);  
    pinMode(a, OUTPUT);  
    pinMode(b, OUTPUT);
```

```
    //Posisi text pada LCD  
    lcd.begin(16,1);  
}
```

```
void loop() {  
    //counter untuk seven segment  
    for(int y = 0; y<5; y++){
```



```
setAngka(counter);
```

```
}
```

```
//Variabel untuk data sensor
```

```
int infraredlogic = digitalRead(infrared);
```

```
int pirlogic = digitalRead(pir);
```

```
int mqlogic = digitalRead(mq);
```

```
int suhulogic = analogRead(suhu);
```

```
int uvlogic = analogRead(uv);
```

```
//counter pada LCD
```

```
if(counter < 100){
```

```
  lcd.clear();
```

```
  lcd.print("Jmlh Mobil: ");
```

```
  lcd.print(counter);
```

```
}
```

```
//fungsi-fungsi untuk mengirim pesan pada serial monitor
```

```
else if(counter == 100){
```

```
  lcd.clear();
```

```
  lcd.print("GARASI PENUH");
```

```
  Serial.write('F');
```

```
}
```

```
if(infraredlogic == HIGH && i == 1){
```

```
  counter++;
```

```
  i = 0;
```

```
  Serial.write('I');
```

```
}
```

```
else if(infraredlogic == LOW){
```

```
  i = 1;
```

```
  Serial.write('i');
```

```
}
```

```
if(suhulogic > 56){
```

```
    Serial.write('S');
```

```
}
```

```
else if(suhulogic <= 56){
```

```
    Serial.write('s');
```

```
}
```

```
if(uvlogic < 885){
```

```
    Serial.write('U');
```

```
}
```

```
else if(uvlogic > 885){
```

```
    Serial.write('u');
```

```
}
```

```
if (mqlogic == HIGH){
```

```
    Serial.write('M');
```

```
}
```

```
else if (mqlogic == LOW){
```

```
    Serial.write('m');
```

```
}
```

```
if(pirlogic == HIGH){
```

```
    Serial.write('P');
```

```
}
```

```
else if(pirlogic == LOW){
```

```
    Serial.write('p');
```

```
}
```

```
}
```

```
void angka(int xx){//fungsi mendeklarasikan nilai angka pada seven segment
```

```
    if(xx==0){  
        digitalWrite(a,LOW);  
        digitalWrite(b,LOW);  
        digitalWrite(c,LOW);  
        digitalWrite(d,LOW);  
    }
```

```
    if(xx==1){  
        digitalWrite(a,HIGH);  
        digitalWrite(b,LOW);  
        digitalWrite(c,LOW);  
        digitalWrite(d,LOW);  
    }
```

```
    if(xx==2){  
        digitalWrite(a,LOW);  
        digitalWrite(b,HIGH);  
        digitalWrite(c,LOW);  
        digitalWrite(d,LOW);  
    }
```

```
    if(xx==3){  
        digitalWrite(a,HIGH);  
        digitalWrite(b,HIGH);  
        digitalWrite(c,LOW);  
        digitalWrite(d,LOW);  
    }
```

```
    if(xx==4){  
        digitalWrite(a,LOW);
```

```
digitalWrite(b,LOW);  
digitalWrite(c,HIGH);  
digitalWrite(d,LOW);  
}
```

```
if(xx==5){  
digitalWrite(a,HIGH);  
digitalWrite(b,LOW);  
digitalWrite(c,HIGH);  
digitalWrite(d,LOW);  
}
```

```
if(xx==6){  
digitalWrite(a,LOW);  
digitalWrite(b,HIGH);  
digitalWrite(c,HIGH);  
digitalWrite(d,LOW);  
}
```

```
if(xx==7){  
digitalWrite(a,HIGH);  
digitalWrite(b,HIGH);  
digitalWrite(c,HIGH);  
digitalWrite(d,LOW);  
}
```

```
if(xx==8){  
digitalWrite(a,LOW);  
digitalWrite(b,LOW);  
digitalWrite(c,LOW);  
digitalWrite(d,HIGH);
```

```
}
```

```
if(xx==9){  
digitalWrite(a,HIGH);  
digitalWrite(b,LOW);  
digitalWrite(c,LOW);  
digitalWrite(d,HIGH);  
}  
}
```

void setAngka(int xxx) {//fungsi mendeklarasikan counter yang akan ditampilkan pada seven segment

```
if (xxx < 10) {  
    ribuan = 0;  
    ratusan = 0;  
    puluhan = 0;  
    satuan = xxx;  
} else if (xxx < 100) {  
    ribuan = 0;  
    ratusan = 0;  
    puluhan = xxx / 10;  
    satuan = xxx % 10;  
} else if (xxx < 1000) {  
    ribuan = 0;  
    ratusan = xxx / 100;  
    puluhan = (xxx / 10) % 10;  
    satuan = xxx % 10;  
} else if (xxx < 10000) {  
    ribuan = xxx / 1000;  
    ratusan = (xxx / 100) % 10;  
    puluhan = (xxx / 10) % 10;  
}
```

}

```
delay(1);
```

```
delay(1);
```

```
delay(1);
```

```
delay(1);
```

[illegible]

 > > > > > >
 > > > > > > >
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