 Aplikasi Keamanan Laboratorium
/>

[KEMBALI KE MENU SEBELUMNYA]

DAFTAR ISI

1. Tujuan

2. Alat dan Bahan

3. Dasar Teori

4. Percobaan

5. Video

6. Download File

 1. Tujuan

[Kembali] <ol style="text-align: left;">
Untuk memahami bagaimana sistem digital bekerja
Untuk memahami bagaimana encoder bekerja

2. Alat dan Bahan

[Kembali]
 - Alat: - Power Supply   Battery dibutuhkan sebagai sumber daya energi agar rangkaian dapat bekerja.   - Voltmeter <a href="https://1.bp.blogspot.com/-He9OnWXl2h4/X4epx3YYLNI/AAAAAAAAAbM/w7yJjMjMZtouLaOaeHPU6VroYopFQVpIgCLcBGAsYHQ/s512/dc%2Bvoltmeter.jpg" style="color: #888888; margin-left: 1em;

margin-right: 1em; text-decoration-line: none;">   DC voltmeter digunakan untuk mengukur besar beda potensial pada rangkaian.   - Motor DC <p class="MsoNormal" style="background-color: white; color: #222222; font-family: Arial, Tahoma, Helvetica, FreeSans, sans-serif; font-size: 13.2px; line-height: 19.8px; margin-left: 35.45pt; text-align: justify;"><span style="background-attachment: initial; background-clip: initial; background-image: initial; background-origin: initial; background-position: initial; background-repeat: initial; background-size: initial; color: black; font-family: "Times New Roman", serif; font-size: 12pt; line-height: 24px;"><o:p></o:p>
 <p class="MsoNormal" style="background-color: white; color: #222222; font-family: Arial, Tahoma, Helvetica, FreeSans, sans-serif; font-size: 13.2px; line-height: 19.8px; margin-left: 35.45pt; text-align: justify;"><span style="background-attachment: initial; background-clip: initial; background-image: initial; background-origin: initial; background-position: initial; background-repeat: initial; background-size: initial; color: black; font-family: "Times New Roman", serif; font-size: 12pt; line-height: 24px;">Motor DC digunakan sebagai output dari rangkaian dan juga merupakan alat yang dapat mengubah energi listrik menjadi energi listrik menjadi energi gerak berupa putaran.<o:p></o:p> <p class="MsoNormal" style="background: white; color: #222222; font-family: Arial, Tahoma, Helvetica, FreeSans, sans-serif; font-size: 13.2px; line-height: 14.85pt; margin-left: 35.45pt; text-align: justify;"><span style="color: black; font-family: "Times

New Roman", serif; font-size: 12pt;">Konfigurasi pin:<o:p></o:p> <p align="center" class="MsoNormal" style="background: white; color: #222222; font-family: Arial, Tahoma, Helvetica, FreeSans, sans-serif; font-size: 13.2px; line-height: normal; margin: 0cm 0cm 0cm 35.45pt; text-align: center;"><o:p></o:p> <span style="background-attachment: initial; background-clip: initial; background-image: initial; background-origin: initial; background-position: initial; background-repeat: initial; background-size: initial; color: #333333; font-family: "Times New Roman", serif; font-size: 12pt; line-height: 24px;"> <p align="center" class="MsoNormal" style="background: white; color: #222222; font-family: Arial, Tahoma, Helvetica, FreeSans, sans-serif; font-size: 13.2px; line-height: 24pt; margin: 0cm 0cm 0cm 35.45pt; text-align: center;"> Pin 1 : Terminal 1<o:p></o:p> <p align="center" class="MsoNormal" style="background: white; color: #222222; font-family: Arial, Tahoma, Helvetica, FreeSans, sans-serif; font-size: 13.2px; line-height: 24pt; margin: 0cm 0cm 0cm 35.45pt; text-align: center;"> Pin 2 : Terminal 2 - Bahan: - Resistor <img border="0" data-original-height="400" data-original-width="400" height="320"

src="https://1.bp.blogspot.com/-2FFyGF3VNa8/X4erFa0Ub8I/AAAAAAAAAbc/cdFOXby9CQYvYvegQ9BT5QtLXdOfbjb0ACLcBGAsYHQ/s320/resistor.jpg" 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(238, 238, 238); box-shadow: rgba(0, 0, 0, 0.1) 1px 1px 5px; padding: 5px; position: relative;" />   Resistor ini digunakan pada sebagai hambatan yang resistansinya ditentukan untuk tiap-tiap cabang.   - Transistor <ul style="background-color: white; color: #222222; font-family: Georgia, Utopia, "Palatino Linotype", Palatino, serif; font-size: 15.4px; line-height: 1.4; margin: 0.5em 0px; padding: 0px 2.5em;">
                     Spesifikasi: <blockquote style="border: medium none; font-family: "Times New Roman", Times, FreeSerif, serif; margin: 0px 0px 0px 40px; padding: 0px;"><blockquote style="border: medium none; margin: 0px 0px 0px 40px; padding: 0px;"> *Bi-Polar NPN Transistor </blockquote><blockquote style="border: medium none; margin: 0px 0px 0px 40px; padding: 0px;"> *DC Current Gain (hFE) is 800 maximum </blockquote><blockquote style="border: medium none; margin: 0px 0px 0px 40px; padding: 0px;"> *Continuous Collector current (IC) is 100mA </blockquote><blockquote style="border: medium none; margin: 0px 0px 0px 40px; padding: 0px;"> *Emitter Base Voltage (VBE) is 6V </blockquote><blockquote style="border: medium none; margin: 0px 0px 0px

40px; padding: 0px;"> *Base Current(IB) is 5mA maximum </blockquote><blockquote style="border: medium none; margin: 0px 0px 0px 40px; padding: 0px;"> *Available in To-92 Package </blockquote><blockquote style="border: medium none; margin: 0px 0px 0px 40px; padding: 0px;"> Konfigurasi Pin : </blockquote><blockquote style="border: medium none; margin: 0px 0px 0px 40px; padding: 0px;">
 </blockquote><blockquote style="border: medium none; margin: 0px 0px 0px 40px; padding: 0px;"> *collector Current flows in through collector </blockquote><blockquote style="border: medium none; margin: 0px 0px 0px 40px; padding: 0px;"> *base   Controls the biasing of transistor </blockquote><blockquote style="border: medium none; margin: 0px 0px 0px 40px; padding: 0px;"> *emitter Current Drains out through emitter </blockquote></blockquote>   - OP-AMP

 <div

class="separator" style="clear: both; text-align: center;"><a
href="https://1.bp.blogspot.com/-50YlbRGCVXM/YEJhexSP0qI/AAAAAAAABPk/DurNCQOvFzA2e-jaYMO6bybql_3R80UhwCLcBGAsYHQ/s759/Screenshot%2B%2528679%2529.png" style="color: #2288bb; margin-left: 1em; margin-right: 1em; text-decoration-line: none;"><img border="0"
data-original-height="459" data-original-width="759"
src="https://1.bp.blogspot.com/-50YlbRGCVXM/YEJhexSP0qI/AAAAAAAABPk/DurNCQOvFzA2e-jaYMO6bybql_3R80UhwCLcBGAsYHQ/s320/Screenshot%2B%2528679%2529.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(238, 238, 238); box-shadow: rgba(0, 0, 0, 0.1) 1px 1px 5px; padding: 5px; position: relative;" width="320" />
   - Sound Sensor <div class="separator" style="background-attachment: initial; background-clip: initial; background-image: initial; background-origin: initial; background-position: 0px 0px; background-repeat: initial; background-size: initial; border: 0px none; clear: both; color: #505050; font-family: Poppins, sans-serif; font-size: 15px; outline: 0px; padding: 0px; vertical-align: baseline;">
 <a
href="https://1.bp.blogspot.com/-W0ppSeQ7cgc/X8RIa6RR_sI/AAAAAAAAEPs/TrGRzJPUzeEFaNBsQAWKPodq_PzpizrkACLcBGAsYHQ/s1000/sound-sensor.jpg" style="background: 0px 0px; border: 0px none; clear: none; color: #2ad2c9; float: none; margin-left: 1em; margin-right: 1em; outline: 0px; padding: 0px; text-decoration-line: none; transition: color 0.17s ease 0s; vertical-align: baseline;"><img border="0"
data-original-height="1000" data-original-width="1000" height="200"
src="https://1.bp.blogspot.com/-W0ppSeQ7cgc/X8RIa6RR_sI/AAAAAAAAEPs/TrGRzJPUzeEFaNBsQAWKPodq_PzpizrkACLcBGAsYHQ/w200-h200/sound-sensor.jpg" style="background: 0px 0px; border: 0px none; box-shadow: rgba(0, 0, 0, 0.1) 1px 1px 5px; max-width: 100%; outline: 0px; padding: 0px; position: relative; vertical-align: baseline;" width="200" /> Spesifikasi :<br style="margin: 0px; padding: 0px; text-align: start;" /><ul style="background: 0px 0px; border: 0px none; line-height: 1.5; list-style: none; margin: 0px 0px 20px 20px; outline: 0px; padding: 0px; text-align: start; vertical-align: baseline;"><li style="background: 0px 0px; border: 0px none; line-height: 1.5; list-style: none; margin: 5px 0px; outline: 0px; padding: 0px; vertical-align: baseline;">Sensitivitas dapat diatur (pengaturan manual pada potensiometer)
<li style="background: 0px 0px; border: 0px none; line-height: 1.5; list-style: none; margin: 5px 0px; outline: 0px; padding: 0px; vertical-align: baseline;">Condeser yang digunakan memiliki sensitivitas yang tinggi
<li style="background: 0px 0px; border: 0px none;

line-height: 1.5; list-style: none; margin: 5px 0px; outline: 0px; padding: 0px; vertical-align: baseline;">Tegangan kerja antara 3.3V – 5V
<li style="background: 0px 0px; border: 0px none; line-height: 1.5; list-style: none; margin: 5px 0px; outline: 0px; padding: 0px; vertical-align: baseline;">Terdapat 2 pin keluaran yaitu tegangan analog dan Digital output
<li style="background: 0px 0px; border: 0px none; line-height: 1.5; list-style: none; margin: 5px 0px; outline: 0px; padding: 0px; vertical-align: baseline;">Sudah terdapat lubang baut untuk instalasi
<li style="background: 0px 0px; border: 0px none; line-height: 1.5; list-style: none; margin: 5px 0px; outline: 0px; padding: 0px; vertical-align: baseline;">Sudah terdapat indikator led <p class="MsoNormal" style="background-attachment: initial; background-clip: initial; background-image: initial; background-origin: initial; background-position: initial; background-repeat: initial; background-size: initial; border: 0px none; color: #505050; font-family: times; font-size: small; line-height: 20.25pt; margin: 0in 0in 0in 42.55pt; outline: 0px; padding: 0px; text-align: justify; vertical-align: baseline;"></p><div class="separator" style="background-attachment: initial; background-clip: initial; background-image: initial; background-origin: initial; background-position: 0px 0px; background-repeat: initial; background-size: initial; border: 0px none; clear: both; color: #505050; font-family: Poppins, sans-serif; font-size: 15px; outline: 0px; padding: 0px; vertical-align: baseline;">
 <div class="separator" style="background-attachment: initial; background-clip: initial; background-image: initial; background-origin: initial; background-position: 0px 0px; background-repeat: initial; background-size: initial; border: 0px none; clear: both; color: #505050; font-family: Poppins, sans-serif; font-size: 15px; outline: 0px; padding: 0px; vertical-align: baseline;"> - Vibration Sensor   Spesifikasi : <ul class="i8Z77e" style="line-height: 1.4;

list-style-image: initial; list-style-position: initial; margin: 0.5em 0px; padding: 0px 2.5em;"><li class="TrT0Xe" style="border: medium none; margin: 0px 0px 0.25em; padding: 0.25em 0px;">Vsuplai : DC 3.3V-5V.
<li class="TrT0Xe" style="border: medium none; margin: 0px 0px 0.25em; padding: 0.25em 0px;">Arus : 15mA.
<li class="TrT0Xe" style="border: medium none; margin: 0px 0px 0.25em; padding: 0.25em 0px;">Sensor : SW-420 Normally Closed.
<li class="TrT0Xe" style="border: medium none; margin: 0px 0px 0.25em; padding: 0.25em 0px;">Output : digital.
<li class="TrT0Xe" style="border: medium none; margin: 0px 0px 0.25em; padding: 0.25em 0px;">Dimensi : 3,8 cm x 1,3 cm x 0,7 cm.
<li class="TrT0Xe" style="border: medium none; margin: 0px 0px 0.25em; padding: 0.25em 0px;">Berat : 10 gr. Konfigurasi Pin:
 Grafik :
 Grafik diatas merupakan perbandingan frekuensi dengan sensitivitas vibration sensor
 - Rain sensor <p align="center"

class="MsoNormal" style="background-attachment: initial; background-clip: initial; background-image: initial; background-origin: initial; background-position: initial; background-repeat: initial; background-size: initial; line-height: normal; margin-bottom: 0cm;"></p> <table align="center" cellpadding="0" cellspacing="0" class="tr-caption-container" 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(242, 242, 242); box-shadow: rgba(0, 0, 0, 0.1) 1px 1px 5px; color: #222222; font-family: Georgia, Utopia, "Palatino Linotype", Palatino, serif; font-size: 18.018px; font-weight: 700; margin-bottom: 0.5em; margin-left: auto; margin-right: auto; padding: 5px; position: relative;"><tbody><tr><td style="text-align: center;"><a
href="https://1.bp.blogspot.com/-bhP6w9OhOx8/X6Qeze72iJI/AAAAAAAAAbE/c6KLfLfc5D0ebUnY5JWdgI0gzl5naPiZwCLcBGAsYHQ/s259/download.jpg" style="color: #959595; margin-left: auto; margin-right: auto; text-decoration-line: none;"></td></tr><tr><td class="tr-caption" style="font-size: 14.4144px; text-align: center;"> spefikasi <ul style="color: #2a2a2a; font-family: Verdana, Tahoma, Arial, sans-serif; font-size: 10.944px; line-height: 1.4; margin: 0px; padding: 0px 2.5em; text-align: left;"><li style="margin: 0px; padding: 0px;">Vin : DC 5V
<li style="margin: 0px; padding: 0px;">Indikator power dan indikator basah
<li style="margin: 0px; padding: 0px;">Adjustable sensitivity via potensio
<li style="margin: 0px; padding: 0px;">Output : Analog dan Digital
<li style="margin: 0px; padding: 0px;">Nilai output tegangan saat kering = 5V. Semakin basah nilai output tegangan semakin berkurang
<li style="margin: 0px; padding: 0px;">Dimensi board sensor : 5,4 cm x 4 cm
<li style="margin: 0px; padding: 0px;">Dimensi board pengkondisi sinyal : 3 cm x 1,6 cm
<li style="margin: 0px; padding: 0px;">Berat : 10 gr Pin Configuration<br style="color: #222222; font-family: Arial, Tahoma, Helvetica, FreeSans, sans-serif; font-size: 13.2px;" />1.VCC: 5V DC <br style="color: #222222; font-family: Arial, Tahoma, Helvetica, FreeSans, sans-serif; font-size: 13.2px;" /><span style="color:

#222222; font-family: inherit; font-size: small;"><span
style="font-family: inherit;"><span face="sans-serif" style="left:
150.04px; top: 996.667px; transform: scaleX(1.0104);">2.<span face="sans-serif" style="left:
180.033px; top: 996.667px; transform: scaleX(0.999775);">GND<span face="sans-serif"
style="left: 224.433px; top: 996.667px; transform: scaleX(1.0015);">: ground<span
face="sans-serif" style="left: 150.04px; top: 1031.07px; transform:
scaleX(1.0104);"> <br style="color: #222222; font-family:
Arial, Tahoma, Helvetica, FreeSans, sans-serif; font-size: 13.2px;" /><span style="color: #222222;
font-family: inherit; font-size: small;"><span style="font-family:
inherit;"><span face="sans-serif" style="left: 150.04px; top: 1031.07px;
transform: scaleX(1.0104);">3.<span face="sans-serif" style="left: 180.033px; top: 1031.07px;
transform: scaleX(0.997333);">DO<span face="sans-serif" style="left: 210.033px; top:
1031.07px; transform: scaleX(1.00025);">: high/low output<br
style="color: #222222; font-family: Arial, Tahoma, Helvetica, FreeSans, sans-serif; font-size: 13.2px;"
/><span style="text-indent:
4.5pt;"><span style="font-size:
small;"><span face="sans-serif" style="left: 210.033px; top: 1031.07px; transform:
scaleX(1.00025);"><span face="sans-serif" style="left: 150.04px; top: 1065.47px; transform:
scaleX(1.0104);">4.<span face="sans-serif" style="left: 180.033px; top: 1065.47px; transform:
scaleX(1.00473);">AO<span face="sans-serif" style="left: 209.033px; top: 1065.47px; transform:
scaleX(1.00008);">: analog
output </td></tr></tbody></tabl
e> <span style="color: black;
font-family: times; font-size: x-large; text-align: left;">   <div
style="background-color: white; color: #222222; font-family: Georgia, Utopia, "Palatino
Linotype", Palatino, serif; font-size: 15.4px;">   - Sensor Flame <div
style="font-size: 15.4px;"><table
align="center" cellpadding="0" cellspacing="0" class="tr-caption-container"
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(238, 238, 238); box-shadow: rgba(0, 0, 0, 0.1) 1px 1px 5px; color: #222222;
margin-bottom: 0.5em; margin-left: auto; margin-right: auto; padding: 5px; position:
relative;"><tbody><tr><td style="text-align: center;"><a
href="https://1.bp.blogspot.com/-N6jpA8bk3qE/X9n0SIaK9gI/AAAAAAAABBc/NDdhV0E92ioEVAsFpqeRf
kwAz3iE6FhOACLcBGAsYHQ/s800/flame%2Bsensor.jpg" style="color: #2288bb; margin-left: auto;
margin-right: auto; text-decoration-line: none;"><img border="0" data-original-height="800"
data-original-width="800" height="320"
src="https://1.bp.blogspot.com/-N6jpA8bk3qE/X9n0SIaK9gI/AAAAAAAABBc/NDdhV0E92ioEVAsFpqeRfk
wAz3iE6FhOACLcBGAsYHQ/s320/flame%2Bsensor.jpg" style="background: transparent; border: 1px
solid rgb(238, 238, 238); box-shadow: rgba(0, 0, 0, 0.1) 1px 1px 5px; padding: 5px; position: relative;"
/></td></tr><tr><td class="tr-caption" style="font-size: 10.56px; text-align: center;"><p
style="-webkit-font-smoothing: antialiased; border: 0px none; color: #242323; font-family: Nunito,
"Source Sans Pro", sans-serif; font-stretch: inherit; font-variant-east-asian: inherit;
font-variant-numeric: inherit; letter-spacing: 0.7px; line-height: inherit; margin: 0px 0px 24px; padding:

0px; text-align: start; text-rendering: optimizelegibility; text-size-adjust: 100%; vertical-align: baseline;"><span style="-webkit-font-smoothing: antialiased; border: 0px none; color: blue; font-family: inherit; font-stretch: inherit; font-style: inherit; font-variant: inherit; font-weight: inherit; line-height: inherit; margin: 0px; padding: 0px; text-rendering: optimizelegibility; text-size-adjust: 100%; vertical-align: baseline;"><b style="-webkit-font-smoothing: antialiased; border: 0px none; color: #242323; font-family: inherit; font-stretch: inherit; font-style: inherit; font-variant: inherit; line-height: inherit; margin: 0px; padding: 0px; text-rendering: optimizelegibility; text-size-adjust: 100%; transition: all 300ms ease 0s; vertical-align: baseline;">FLAME SENSOR PIN DETAILS:</p><table border="1" style="-webkit-font-smoothing: antialiased; border-collapse: collapse; border-spacing: 0px; border: 1px solid rgb(238, 238, 238); color: #242323; font-family: Nunito, "Source Sans Pro", sans-serif; font-stretch: inherit; font-variant-east-asian: inherit; font-variant-numeric: inherit; height: 115px; letter-spacing: 0.7px; line-height: inherit; margin: 8px 0px 24px; max-width: 100%; padding: 7px 15px; text-align: center; text-rendering: optimizelegibility; text-size-adjust: 100%; vertical-align: baseline; width: 738px;"><tbody style="-webkit-font-smoothing: antialiased; border: 0px none; font-family: inherit; font-stretch: inherit; font-style: inherit; font-variant: inherit; font-weight: inherit; line-height: inherit; margin: 0px; padding: 0px; text-rendering: optimizelegibility; text-size-adjust: 100%; vertical-align: baseline;"><tr style="-webkit-font-smoothing: antialiased; border: 0px none; font-family: inherit; font-stretch: inherit; font-style: inherit; font-variant: inherit; font-weight: inherit; height: 23px; line-height: inherit; margin: 0px; padding: 0px; text-rendering: optimizelegibility; text-size-adjust: 100%; vertical-align: baseline;"><td style="-webkit-font-smoothing: antialiased; border: 1px solid rgb(238, 238, 238); font-family: inherit; font-stretch: inherit; font-style: inherit; font-variant: inherit; font-weight: inherit; height: 23px; line-height: inherit; margin: 0px; padding: 7px 15px; text-rendering: optimizelegibility; text-size-adjust: 100%; vertical-align: baseline; width: 338px;"><span style="-webkit-font-smoothing: antialiased; border: 0px none; color: blue; font-family: inherit; font-stretch: inherit; font-style: inherit; font-variant: inherit; font-weight: inherit; line-height: inherit; margin: 0px; padding: 0px; text-rendering: optimizelegibility; text-size-adjust: 100%; vertical-align: baseline;"><b style="-webkit-font-smoothing: antialiased; border: 0px none; color: #242323; font-family: inherit; font-stretch: inherit; font-style: inherit; font-variant: inherit; line-height: inherit; margin: 0px; padding: 0px; text-rendering: optimizelegibility; text-size-adjust: 100%; transition: all 300ms ease 0s; vertical-align: baseline;">SENSOR PIN</td><td style="-webkit-font-smoothing: antialiased; border: 1px solid rgb(238, 238, 238); font-family: inherit; font-stretch: inherit; font-style: inherit; font-variant: inherit; font-weight: inherit; height: 23px; line-height: inherit; margin: 0px; padding: 7px 15px; text-rendering: optimizelegibility; text-size-adjust: 100%; vertical-align: baseline; width: 337px;"><span style="-webkit-font-smoothing: antialiased; border: 0px none; color: blue; font-family: inherit; font-stretch: inherit; font-style: inherit; font-variant: inherit; font-weight: inherit; line-height: inherit; margin: 0px; padding: 0px; text-rendering: optimizelegibility; text-size-adjust: 100%; vertical-align: baseline;"><b style="-webkit-font-smoothing: antialiased; border: 0px none; color: #242323; font-family: inherit; font-stretch: inherit; font-style: inherit; font-variant: inherit; line-height: inherit; margin: 0px; padding: 0px; text-rendering: optimizelegibility; text-size-adjust: 100%; transition: all 300ms ease 0s; vertical-align: baseline;">DESCRIPTION</td></tr><tr style="-webkit-font-smoothing: antialiased; border: 0px none; font-family: inherit; font-stretch: inherit; font-style: inherit; font-variant: inherit; font-weight: inherit; height: 23px; line-height: inherit; margin: 0px; padding: 0px; text-rendering: optimizelegibility; text-size-adjust: 100%; vertical-align: baseline;"><td style="-webkit-font-smoothing: antialiased; border: 1px solid rgb(238, 238, 238); font-family: inherit;

font-stretch: inherit; font-style: inherit; font-variant: inherit; font-weight: inherit; height: 23px; line-height: inherit; margin: 0px; padding: 7px 15px; text-rendering: optimizelegibility; text-size-adjust: 100%; vertical-align: baseline; width: 338px;">VCC</td><td style="-webkit-font-smoothing: antialiased; border: 1px solid rgb(238, 238, 238); font-family: inherit; font-stretch: inherit; font-style: inherit; font-variant: inherit; font-weight: inherit; height: 23px; line-height: inherit; margin: 0px; padding: 7px 15px; text-rendering: optimizelegibility; text-size-adjust: 100%; vertical-align: baseline; width: 337px;">+5 V DC</td></tr><tr style="-webkit-font-smoothing: antialiased; border: 0px none; font-family: inherit; font-stretch: inherit; font-style: inherit; font-variant: inherit; font-weight: inherit; height: 23px; line-height: inherit; margin: 0px; padding: 0px; text-rendering: optimizelegibility; text-size-adjust: 100%; vertical-align: baseline;"><td style="-webkit-font-smoothing: antialiased; border: 1px solid rgb(238, 238, 238); font-family: inherit; font-stretch: inherit; font-style: inherit; font-variant: inherit; font-weight: inherit; height: 23px; line-height: inherit; margin: 0px; padding: 7px 15px; text-rendering: optimizelegibility; text-size-adjust: 100%; vertical-align: baseline; width: 338px;">GND</td><td style="-webkit-font-smoothing: antialiased; border: 1px solid rgb(238, 238, 238); font-family: inherit; font-stretch: inherit; font-style: inherit; font-variant: inherit; font-weight: inherit; height: 23px; line-height: inherit; margin: 0px; padding: 7px 15px; text-rendering: optimizelegibility; text-size-adjust: 100%; vertical-align: baseline; width: 337px;">Ground of Arduino Uno</td></tr><tr style="-webkit-font-smoothing: antialiased; border: 0px none; font-family: inherit; font-stretch: inherit; font-style: inherit; font-variant: inherit; font-weight: inherit; height: 23px; line-height: inherit; margin: 0px; padding: 0px; text-rendering: optimizelegibility; text-size-adjust: 100%; vertical-align: baseline;"><td style="-webkit-font-smoothing: antialiased; border: 1px solid rgb(238, 238, 238); font-family: inherit; font-stretch: inherit; font-style: inherit; font-variant: inherit; font-weight: inherit; height: 23px; line-height: inherit; margin: 0px; padding: 7px 15px; text-rendering: optimizelegibility; text-size-adjust: 100%; vertical-align: baseline; width: 338px;">Do</td><td style="-webkit-font-smoothing: antialiased; border: 1px solid rgb(238, 238, 238); font-family: inherit; font-stretch: inherit; font-style: inherit; font-variant: inherit; font-weight: inherit; height: 23px; line-height: inherit; margin: 0px; padding: 7px 15px; text-rendering: optimizelegibility; text-size-adjust: 100%; vertical-align: baseline; width: 337px;">Digital Output</td></tr><tr style="-webkit-font-smoothing: antialiased; border: 0px none; font-family: inherit; font-stretch: inherit; font-style: inherit; font-variant: inherit; font-weight: inherit; height: 23px; line-height: inherit; margin: 0px; padding: 0px; text-rendering: optimizelegibility; text-size-adjust: 100%; vertical-align: baseline;"><td style="-webkit-font-smoothing: antialiased; border: 1px solid rgb(238, 238, 238); font-family: inherit; font-stretch: inherit; font-style: inherit; font-variant: inherit; font-weight: inherit; height: 23px; line-height: inherit; margin: 0px; padding: 7px 15px; text-rendering: optimizelegibility; text-size-adjust: 100%; vertical-align: baseline; width: 338px;">Ao</td><td style="-webkit-font-smoothing: antialiased; border: 1px solid rgb(238, 238, 238); font-family: inherit; font-stretch: inherit; font-style: inherit; font-variant: inherit; font-weight: inherit; height: 23px; line-height: inherit; margin: 0px; padding: 7px 15px; text-rendering: optimizelegibility; text-size-adjust: 100%; vertical-align: baseline; width: 337px;">Analog output</td></tr></tbody></table><p style="-webkit-font-smoothing: antialiased; border: 0px none; color: #242323; font-family: Nunito, "Source Sans Pro", sans-serif; font-stretch: inherit; font-variant-east-asian: inherit; font-variant-numeric: inherit; letter-spacing: 0.7px; line-height: inherit; margin: 0px 0px 24px; padding: 8px 0px 0px; text-align: start; text-rendering: optimizelegibility; text-size-adjust: 100%; vertical-align: baseline;"><span style="-webkit-font-smoothing: antialiased; border: 0px none; color: blue; font-family: inherit; font-stretch: inherit; font-style: inherit; font-variant:

inherit; font-weight: inherit; line-height: inherit; margin: 0px; padding: 0px; text-rendering: optimizelegibility; text-size-adjust: 100%; vertical-align: baseline;"><b style="-webkit-font-smoothing: antialiased; border: 0px none; color: #242323; font-family: inherit; font-stretch: inherit; font-style: inherit; font-variant: inherit; line-height: inherit; margin: 0px; padding: 0px; text-rendering: optimizelegibility; text-size-adjust: 100%; transition: all 300ms ease 0s; vertical-align: baseline;">FUTURES OF THE FLAME SENSOR:
1. Detect fire, detect light source and sensitive to light with wavelenghth of 940nm.
2. Interface:Analog or digital.
3. Supply Voltage: +5 V.
4. Detection range: 20cm (1V) ~ 100cm (4.8V). </td></tr></tbody></table>
     - Relay <ul style="font-family: "Times New Roman", Times, FreeSerif, serif; line-height: 1.4; margin: 0.5em 0px; padding: 0px 2.5em;">
<blockquote style="border: medium none; margin: 0px 0px 0px 40px; padding: 0px;"><blockquote style="border: medium none; margin: 0px 0px 0px 40px; padding: 0px;">   - Spesifikasi</blockquote><blockquote style="border: medium none; margin: 0px 0px 0px 40px; padding: 0px;"> * Trigger Voltage (Voltage across coil) : 5V DC </blockquote><blockquote style="border: medium none; margin: 0px 0px 0px 40px; padding: 0px;"> * Trigger Current (Nominal current) : 70mA </blockquote><blockquote style="border: medium none; margin: 0px 0px 0px 40px; padding: 0px;"> * Maximum AC load current: 10A @ 250/125V AC </blockquote><blockquote style="border: medium none; margin: 0px 0px 0px 40px; padding: 0px;"> * Maximum DC load current: 10A @ 30/28V DC </blockquote><blockquote style="border: medium none; margin: 0px 0px 0px 40px; padding: 0px;"> * Compact 5-pin configuration with plastic moulding </blockquote><blockquote style="border: medium none; margin: 0px 0px 0px 40px; padding: 0px;"> * Operating time: 10msec Release time: 5msec </blockquote><blockquote

style="border: medium none; margin: 0px 0px 0px 40px; padding: 0px;"> * Maximum switching: 300 operating/minute (mechanically) </blockquote><blockquote style="border: medium none; margin: 0px 0px 0px 40px; padding: 0px;"> - Konfigurasi Pin </blockquote><blockquote style="border: medium none; margin: 0px 0px 0px 40px; padding: 0px;"> * Coil End 1 : Used to trigger(On/Off) the Relay, Normally one end is connected to 5V and the other end to ground. </blockquote><blockquote style="border: medium none; margin: 0px 0px 0px 40px; padding: 0px;"> * Coil End 2 : Used to trigger(On/Off) the Relay, Normally one end is connected to 5V and the other end to ground. </blockquote><blockquote style="border: medium none; margin: 0px 0px 0px 40px; padding: 0px;"> * Common (COM) : Common is connected to one End of the Load that is to be controlled. </blockquote><blockquote style="border: medium none; margin: 0px 0px 0px 40px; padding: 0px;"> * Normally Close (NC) : The other end of the load is either connected to NO or NC. If connected to NC the load remains connected before trigger.
 </blockquote><blockquote style="border: medium none; margin: 0px 0px 0px 40px; padding: 0px;"> * Normally Open (NO) : The other end of the load is either connected

to NO or NC. If connected to NO the load remains disconnected before
trigger. </blockquote></bloc
kquote>   - LED-RED <div class="separator"
style="clear: both; text-align: center;"><a
href="https://1.bp.blogspot.com/-4Mh4NX6kvFA/X4fKxADLWeI/AAAAAAAAAeU/zEp7-rB67pIAFFnyCBbf
7lHeU3nsVs-TQCLcBGAsYHQ/s425/5-mm-red-led-light-prayogindia.jpg" style="color: #2288bb;
margin-left: 1em; margin-right: 1em; text-decoration-line: none;"><img border="0"
data-original-height="282" data-original-width="425"
src="https://1.bp.blogspot.com/-4Mh4NX6kvFA/X4fKxADLWeI/AAAAAAAAAeU/zEp7-rB67pIAFFnyCBbf7l
HeU3nsVs-TQCLcBGAsYHQ/s320/5-mm-red-led-light-prayogindia.jpg" style="background-attachment:
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background-position: initial; background-repeat: initial; background-size: initial; border: 1px solid
rgb(238, 238, 238); box-shadow: rgba(0, 0, 0, 0.1) 1px 1px 5px; padding: 5px; position: relative;"
width="320" />

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style="border: medium none; font-size: 15.4px; margin: 0px 0px 0px 40px; padding: 0px;"><blockquote
style="border: medium none; margin: 0px 0px 0px 40px; padding: 0px;">Berfungsi sebagai lampu
indikator keberadaan gas pada rangkaian</blockquote></blockquote>   -
Buzzer <blockquote style="border: medium none; font-size: 15.4px; margin: 0px 0px 0px 40px;
padding: 0px;"> </blockquote> <div
class="separator" style="clear: both; font-size: 15.4px; text-align: center;"><a
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Dmc_4aUUJDehFljgCLcBGAsYHQ/s350/buzzer.jpg" style="color: #33aaff; margin-left: 1em; margin-right:
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mc_4aUUJDehFljgCLcBGAsYHQ/s320/buzzer.jpg" 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(238, 238, 238);
box-shadow: rgba(0, 0, 0, 0.1) 1px 1px 5px; padding: 5px; position: relative;"
/>
 <span face="Arial, Tahoma, Helvetica, FreeSans, sans-serif"
style="background-color: white; color: #333333; font-size: small;"><p
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style="background-attachment: scroll; background-clip: initial; background-image: none;
background-origin: initial; background-position: 0% 0%; background-repeat: repeat; background-size:
initial; line-height: 13.65px;">- IC 4556 <p class="MsoNormal" style="line-height: 13.65px;
margin-bottom: 0in;"> <a
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9ea4-6db5b6dfd3d4.jpg" style="margin-left: 1em; margin-right: 1em;"><img border="0"
data-original-height="500" data-original-width="500" height="500"
src="https://images.tokopedia.net/img/cache/500-square/VqbcmM/2021/10/6/8c931988-43a6-4502-9e
a4-6db5b6dfd3d4.jpg" width="500" /> <span style="background-attachment: scroll;
background-clip: initial; background-image: none; background-origin: initial; background-position: 0%
0%; background-repeat: repeat; background-size: initial; line-height: 13.65px;">
 <p

class="MsoNormal" style="line-height: 13.65px; margin-bottom: 0in;">Sirkuit terpadu D4556 adalah penguatan tinggi, arus keluaran tinggi, penguat operasional ganda ayunan tegangan keluaran tinggi yang mampu menggerakkan 70mA.
 <span style="background-attachment: scroll; background-clip: initial; background-image: none; background-origin: initial; background-position: 0% 0%; background-repeat: repeat; background-size: initial; line-height: 13.65px;"> FITUR: Tegangan Operasi Pasokan Tunggal (+3V~+15V) Arus Output Tinggi (70mA) Laju Slew (tipe 1.0V/ms) Teknologi Bipolar

3. Dasar Teori

[Kembali]
 -Resistor
 <blockquote style="border: medium none; margin: 0px 0px 0px 40px; padding: 0px;"><blockquote style="border: medium none; margin: 0px 0px 0px 40px; padding: 0px;"> Resistor adalah komponen elektronika yang berfungsi untuk menghambat atau membatasi aliran listrik yang mengalir dalam suatu rangkaian. Fungsi resistor yang bersifat resistif merupakan salah satu komponen kategori pasif dalam elektronika. Satuan resistansi resistor disebut Ohm yang dilambangkan dengan simbol Omega (Ω). Hukum Ohm mengatakan bahwa resistansi berbanding terbalik dengan jumlah arus yang mengalir melaluinya. </blockquote></blockquote> Rumus Hukum Ohm   <a href="https://1.bp.blogspot.com/-FZvpbNnYyCA/X2sV0NX2DjI/AAAAAAAAALk/fgUN-PbU1DE8xVysjoGW0YDm5nDkWk64gCLcBGAsYHQ/s360/ressymb_din2.png" style="color: #2288bb; margin-left: 1em;

margin-right: 1em; text-decoration-line: none;"> Simbol Resistor <blockquote style="border: medium none; margin: 0px 0px 0px 40px; padding: 0px;"><blockquote style="border: medium none; margin: 0px 0px 0px 40px; padding: 0px;"> <span style="border: 0px none; box-sizing: border-box; font-family: inherit; font-size: 15.4px; font-stretch: inherit; font-style: inherit; font-variant: inherit; font-weight: inherit; line-height: inherit; margin: 0px; padding: 0px; text-align: justify; vertical-align: baseline; white-space: pre-wrap;">Cara menghitung nilai resistansi resistor dengan gelang warna:
<span style="border: 0px none; box-sizing: border-box; font-family: inherit; font-size: 15.4px; font-stretch: inherit; font-style: inherit; font-variant: inherit; font-weight: inherit; line-height: inherit; margin: 0px; padding: 0px; text-align: justify; vertical-align: baseline; white-space: pre-wrap;">1. Masukkan angka langsung dari kode warna gelang pertama
<span style="border: 0px none; box-sizing: border-box; font-family: inherit; font-size: 15.4px; font-stretch: inherit; font-style: inherit; font-variant: inherit; font-weight: inherit; line-height: inherit; margin: 0px; padding: 0px; text-align: justify; vertical-align: baseline; white-space: pre-wrap;">2. Masukkan angka langsung dari kode warna gelang kedua
<span style="border: 0px none; box-sizing: border-box; font-family: inherit; font-size: 15.4px; font-stretch: inherit; font-style: inherit; font-variant: inherit; font-weight: inherit; line-height: inherit; margin: 0px; padding: 0px; text-align: justify; vertical-align: baseline; white-space: pre-wrap;">3. Masukkan angka langsung dari kode warna gelang ketiga
<span style="border: 0px none; box-sizing: border-box; font-family: inherit; font-size: 15.4px; font-stretch: inherit; font-style: inherit; font-variant: inherit; font-weight: inherit; line-height: inherit; margin: 0px; padding: 0px; text-align: justify; vertical-align: baseline; white-space: pre-wrap;">4. Masukkan jumlah nol dari kode warna gelang ke-4 atau pangkatkan angka tersebut dengan   10(10^n) </blockquote></blockquote>
     -Relay <blockquote style="border: medium none; margin: 0px 0px 0px 40px; padding: 0px;"><blockquote style="border: medium none; margin: 0px 0px 0px 40px; padding:

0px;">   Relay adalah Saklar (Switch) yang dioperasikan secara listrik dan merupakan komponen Electromechanical (Elektromekanikal) yang terdiri dari 2 bagian utama yakni Elektromagnet (Coil) dan Mekanikal (seperangkat Kontak Saklar/Switch). Relay menggunakan Prinsip Elektromagnetik untuk menggerakkan Kontak Saklar sehingga dengan arus listrik yang kecil (low power) dapat menghantarkan listrik yang bertegangan lebih tinggi. Sebagai contoh, dengan Relay yang menggunakan Elektromagnet 5V dan 50 mA mampu menggerakan Armature Relay (yang berfungsi sebagai saklarnya) untuk menghantarkan listrik 220V 2A. </blockquote></blockquote>
 <blockquote style="border: medium none; margin: 0px 0px 0px 40px; padding: 0px;"><blockquote style="border: medium none; margin: 0px 0px 0px 40px; padding: 0px;"> Pada dasarnya, Relay terdiri dari 4 komponen dasar yaitu : <ol style="border: 0px none; font-stretch: inherit; font-variant-east-asian: inherit; font-variant-numeric: inherit; line-height: inherit; list-style-image: initial; list-style-position: initial; margin: 0px 0px 1.25rem 2.5rem; padding: 0px; vertical-align: baseline;"><li style="border: 0px none; font-stretch: inherit; font-style: inherit; font-variant: inherit; font-weight: inherit; line-height: inherit; margin: 0px; padding: 0px; vertical-align: baseline;">Electromagnet (Coil)
<li style="border: 0px none; font-stretch: inherit; font-style: inherit; font-variant: inherit; font-weight: inherit; line-height: inherit; margin: 0px; padding: 0px; vertical-align: baseline;">Armature
<li style="border: 0px none; font-stretch: inherit; font-style: inherit; font-variant: inherit; font-weight: inherit; line-height: inherit; margin: 0px; padding: 0px; vertical-align: baseline;">Switch Contact Point (Saklar)
<li style="border: 0px none; font-stretch: inherit; font-style: inherit; font-variant: inherit; font-weight: inherit; line-height: inherit; margin: 0px; padding: 0px; vertical-align: baseline;">Spring
</blockquote></blockquote><blockquote style="border: medium none; margin: 0px 0px 0px 40px; padding: 0px;"><blockquote style="border: medium none; margin: 0px 0px 0px 40px; padding: 0px;"><p style="border: 0px none; font-stretch: inherit; font-variant-east-asian: inherit; font-variant-numeric: inherit; line-height: inherit; margin: 0px 0px 1.25rem; padding: 0px; vertical-align: baseline;">Kontak Poin (Contact Point) Relay terdiri dari

2 jenis yaitu : <ul style="border: 0px none; font-stretch: inherit; font-variant-east-asian: inherit; font-variant-numeric: inherit; line-height: inherit; list-style: square; margin: 0px 0px 1.25rem 2.5rem; padding: 0px; vertical-align: baseline;"><li style="border: 0px none; font-stretch: inherit; font-style: inherit; font-variant: inherit; font-weight: inherit; line-height: inherit; margin: 0px; padding: 0px; vertical-align: baseline;">Normally Close (NC) yaitu kondisi awal sebelum diaktifkan akan selalu berada di posisi CLOSE (tertutup)
<li style="border: 0px none; font-stretch: inherit; font-style: inherit; font-variant: inherit; font-weight: inherit; line-height: inherit; margin: 0px; padding: 0px; vertical-align: baseline;">Normally Open (NO) yaitu kondisi awal sebelum diaktifkan akan selalu berada di posisi OPEN (terbuka)
</blockquote></blockquote><blockquote style="border: medium none; margin: 0px 0px 0px 40px; padding: 0px;"><blockquote style="border: medium none; margin: 0px 0px 0px 40px; padding: 0px; text-align: justify;">   Sebuah Besi (Iron Core) yang dililit oleh sebuah kumparan Coil yang berfungsi untuk mengendalikan Besi tersebut. Apabila Kumparan Coil diberikan arus listrik, maka akan timbul gaya Elektromagnet yang kemudian menarik Armature untuk berpindah dari Posisi sebelumnya (NC) ke posisi baru (NO) sehingga menjadi Saklar yang dapat menghantarkan arus listrik di posisi barunya (NO). Posisi dimana Armature tersebut berada sebelumnya (NC) akan menjadi OPEN atau tidak terhubung. Pada saat tidak dialiri arus listrik, Armature akan kembali lagi ke posisi Awal (NC). Coil yang digunakan oleh Relay untuk menarik Contact Poin ke Posisi Close pada umumnya hanya membutuhkan arus listrik yang relatif kecil.</blockquote></blockquote>   <blockquote style="border: medium none; margin: 0px 0px 0px 40px; padding: 0px;"><blockquote style="border: medium none; margin: 0px 0px 0px 40px; padding: 0px;"> Beberapa fungsi Relay yang telah umum diaplikasikan kedalam peralatan Elektronika diantaranya adalah : <ol style="border: 0px none; font-stretch: inherit; font-variant-east-asian: inherit; font-variant-numeric: inherit; line-height: inherit; list-style-image: initial; list-style-position: initial; margin: 0px 0px 1.25rem 2.5rem; padding: 0px; vertical-align: baseline;"><li style="border: 0px none; font-stretch: inherit; font-style: inherit; font-variant: inherit; font-weight: inherit; line-height: inherit; margin: 0px; padding: 0px; text-align: justify; vertical-align: baseline;">Relay digunakan untuk menjalankan Fungsi Logika (Logic Function)
<li style="border: 0px none; font-stretch: inherit; font-style: inherit; font-variant: inherit; font-weight: inherit; line-height: inherit;

margin: 0px; padding: 0px; text-align: justify; vertical-align: baseline;">Relay digunakan untuk memberikan Fungsi penundaan waktu (Time Delay Function)
<li style="border: 0px none; font-stretch: inherit; font-style: inherit; font-variant: inherit; font-weight: inherit; line-height: inherit; margin: 0px; padding: 0px; text-align: justify; vertical-align: baseline;">Relay digunakan untuk mengendalikan Sirkuit Tegangan tinggi dengan bantuan dari Signal Tegangan rendah.
<li style="border: 0px none; font-stretch: inherit; font-style: inherit; font-variant: inherit; font-weight: inherit; line-height: inherit; margin: 0px; padding: 0px; text-align: justify; vertical-align: baseline;">Ada juga Relay yang berfungsi untuk melindungi Motor ataupun komponen lainnya dari kelebihan Tegangan ataupun hubung singkat (Short).
</blockquote></blockquote>   - Transistor <blockquote style="border: medium none; margin: 0px 0px 0px 40px; padding: 0px;"><blockquote style="border: medium none; margin: 0px 0px 0px 40px; padding: 0px; text-align: justify;">   Transistor merupakan salah satu Komponen Elektronika Aktif yang paling sering digunakan dalam rangkaian Elektronika, baik rangkaian Elektronika yang paling sederhana maupun rangkaian Elektronika yang rumit dan kompleks. Transistor pada umumnya terbuat dari bahan semikonduktor seperti Germanium, Silikon, dan Gallium Arsenide. Secara umum, Transistor dapat dibagi menjadi 2 kelompok Jenis yaitu Transistor Bipolar (BJT) dan Field Effect Transistor (FET).</blockquote></blockquote>
 <blockquote style="border: medium none; margin: 0px 0px 0px 40px; padding: 0px;"><blockquote style="border: medium none; margin: 0px 0px 0px 40px; padding: 0px;"> Fungsi-fungsi Transistor diantaranya adalah : <ul style="border: 0px none; font-stretch: inherit; font-variant-east-asian: inherit; font-variant-numeric: inherit; line-height: inherit; list-style: square; margin: 0px 0px 1.25rem 2.5rem; padding: 0px; vertical-align: baseline;"><li style="border: 0px none; font-stretch: inherit; font-style: inherit; font-variant: inherit; font-weight: inherit; line-height: inherit; margin: 0px; padding: 0px; text-align: justify; vertical-align: baseline;">sebagai Penyearah,
<li style="border: 0px none; font-stretch: inherit; font-style: inherit; font-variant: inherit; font-weight: inherit; line-height: inherit; margin: 0px; padding: 0px; text-align: justify; vertical-align: baseline;">sebagai Penguat tegangan dan daya,
<li style="border: 0px none; font-stretch: inherit; font-style: inherit; font-variant: inherit; font-weight: inherit; line-height: inherit; margin: 0px; padding: 0px; text-align: justify;

vertical-align: baseline;">sebagai Stabilisasi tegangan,
<li style="border: 0px none; font-stretch: inherit; font-style: inherit; font-variant: inherit; font-weight: inherit; line-height: inherit; margin: 0px; padding: 0px; text-align: justify; vertical-align: baseline;">sebagai Mixer,
<li style="border: 0px none; font-stretch: inherit; font-style: inherit; font-variant: inherit; font-weight: inherit; line-height: inherit; margin: 0px; padding: 0px; text-align: justify; vertical-align: baseline;">sebagai Osilator
<li style="border: 0px none; font-stretch: inherit; font-style: inherit; font-variant: inherit; font-weight: inherit; line-height: inherit; margin: 0px; padding: 0px; text-align: justify; vertical-align: baseline;">sebagai Switch (Pemutus dan Penyambung Sirkuit)
</blockquote></blockquote><blockquote style="border: medium none; margin: 0px 0px 0px 40px; padding: 0px;"><blockquote style="border: medium none; margin: 0px 0px 0px 40px; padding: 0px;">   Transistor adalah Komponen Elektronika yang terdiri dari 3 Lapisan Semikonduktor dan memiliki 3 Terminal (kaki) yaitu Terminal Emitor yang disingkat dengan huruf “E”, Terminal Base (Basis) yang disingkat dengan huruf “B” serta Terminal Collector/Kolektor yang disingkat dengan huruf “C”. Berdasarkan strukturnya, Transistor sebenarnya merupakan gabungan dari sambungan 2 dioda. Dari gabungan tersebut , Transistor kemudian dibagi menjadi 2 tipe yaitu Transistor tipe NPN dan Transistor tipe PNP yang disebut juga dengan Transistor Bipolar. Dikatakan Bipolar karena memiliki 2 polaritas dalam membawa arus listrik. <p style="border: 0px none; font-stretch: inherit; font-variant-east-asian: inherit; font-variant-numeric: inherit; line-height: inherit; margin: 0px 0px 1.25rem; padding: 0px; text-align: justify; vertical-align: baseline;">NPN merupakan singkatan dari Negatif-Positif-Negatif sedangkan PNP adalah singkatan dari Positif-Negatif-Positif. </blockquote></blockquote>
  - Rain Sensor <table align="center" cellpadding="0" cellspacing="0" class="tr-caption-container" 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(242, 242, 242);

box-shadow: rgba(0, 0, 0, 0.1) 1px 1px 5px; color: #222222; font-size: 15.4px; margin-bottom: 0.5em; margin-left: auto; margin-right: auto; padding: 5px; position: relative;"><tbody><tr><td class="tr-caption" style="font-size: 12.32px; text-align: center;">Rain sensor merupakan sensor yang berfungsi untuk mendeteksi hujan turun atau tidak. Intinya sensor ini jika terkena air pada papan sensornya maka resistansinya akan berubah, semakin banyak semakin kecil dan sebaliknya. Pada sensor ini, terdapat integrated circuit atau IC (komponen dasar yang terdiri dari resistor, transistor, dan lain-lain) komparator yang berfungsi memberikan sinyal berupa logika ‘on’ dan ‘off’.T</td></tr></tbody></table>

 <br style="color: #222222; font-family: Arial, Tahoma, Helvetica, FreeSans, sans-serif; font-size: 13.2px;" /><br style="color: #222222; font-family: Arial, Tahoma, Helvetica, FreeSans, sans-serif; font-size: 13.2px;" /><br style="color: #222222; font-family: Arial, Tahoma, Helvetica, FreeSans, sans-serif; font-size: 13.2px;" /> <br style="color: #222222; font-family: Arial, Tahoma, Helvetica, FreeSans, sans-serif; font-size: 13.2px;" /> Gambar grafik rain sensor

 - Flame Sensor Salah satu detektor yang memiliki fungsi terpenting adalah detektor api atau yang biasa disebut dengan Flame Detector yang mampu

mengaktifkan alarm bila mendeteksi adanya percikan api yang berisiko menyebabkan bencana kebakaran. Namun, saat memilih Flame Detector, pengguna diharuskan telah benar-benar paham atas prinsip dari alat detektor tersebut dan meninjaunya demi mendapatkan Flame Detector yang sesuai dengan aktivitas di dalam lokasi dan tingkat kebutuhannya, serta bagaimana konsekuensi risiko yang mungkin terjadi.<o:p></o:p> Prinsip Flame Detektor tersebut menggunakan metode optik yang bekerja seperti UV (ultraviolet) dan IR (infrared), pencitraan visual api, serta spektroskopi yang berfungsi untuk mengidentifikasi percikan api atau flame. Reaksi intens bahan yang memicu kebakaran dapat ditandai dari UV, terlihatnya emisi karbondioksida, dan radiasi dari infrared. Flame Detector juga mampu membedakan antara False Alarm atau peringatan palsu dengan api kebakaran sungguhan melalui komponen sistem yang dirancang dengan fungsi mendeteksi adanya penyerapan cahaya yang terjadi pada gelombang tertentu.<o:p></o:p> Tingkat potensi risiko kebakaran dari setiap jenis bahan semakin meluas mengingat semakin canggihnya teknologi penginderaan api atau teknologi Flame Sensing. Pada umumnya bahan bakar industri yang tergolong mudah terbakar antara lain: bensin, hidrogen, belerang, alkohol, LNG/LPG, minyak tanah, kertas, disel, kayu, jet bahan bakar, tekstil, ethylene, dan pelarut.<o:p></o:p>
  Gambar 14. Grafik Respon Flame Sensor
 - sensor vibration <table align="center" cellpadding="0" cellspacing="0" class="tr-caption-container" 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(241, 241, 241); box-shadow: rgba(0, 0, 0, 0.1) 1px 1px 5px; color: #222222; font-family: "Times New Roman", serif; font-size: 16px; font-weight: 700; margin-bottom: 0.5em; margin-left: auto; margin-right: auto; padding: 5px; position: relative; text-align: justify;"><tbody><tr><td style="text-align: center;"><img alt="" data-original-height="638" data-original-width="416" height="240"

src="https://blogger.googleusercontent.com/img/a/AVvXsEiwpuheHa7G_O9hEi_k7LLoqm6HRd7_VOdZovwobcb25nfnwGUV-1UJdIHMHJaQQkVDYfJ4RXRo5nX4rms8fvQh6L9VJJfbf5ArPFv2gWVWQVr5blnjx56w3hWxTf9aWFfgPMOvMksA8kSQydrW0ro-gfPn5WMCPhKj4KuiFAWy5qR1uQCbDw7_dNDk"
style="background: transparent; border: medium none; box-shadow: rgba(0, 0, 0, 0.1) 0px 0px 0px; padding: 0px; position: relative;" width="156" />></td></tr><tr><td class="tr-caption" style="font-size: 12.8px; text-align: center;"> <span style="background-attachment: initial; background-clip: initial; background-image: initial; background-origin: initial; background-position: 0px 0px; background-repeat: initial; background-size: initial; border: 0px none; outline: 0px; padding: 0px; vertical-align: baseline;"><div class="separator" style="background-attachment: initial; background-clip: initial; background-image: initial; background-origin: initial; background-position: 0px 0px; background-repeat: initial; background-size: initial; border: 0px none; clear: both; outline: 0px; padding: 0px; text-align: center; vertical-align: baseline;"> Vibration sensor / Sensor getaran ini memegang peranan penting dalam kegiatan pemantauan sinyal getaran karena terletak di sisi depan (front end) dari suatu proses pemantauan getaran mesin. Secara konseptual, sensor getaran berfungsi untuk mengubah besar sinyal getaran fisik menjadi sinyal getaran analog dalam besaran listrik dan pada umumnya berbentuk tegangan listrik. Pemakaian sensor getaran ini memungkinkan sinyal getaran tersebut diolah secara elektrik sehingga memudahkan dalam proses manipulasi sinyal, diantaranya:
 <blockquote style="border: medium none; font-family: "Times New Roman"; margin: 0px 0px 0px 40px; padding: 0px; text-align: left;"> <span style="background-attachment: initial; background-clip: initial; background-image: initial; background-origin: initial; background-position: 0px 0px; background-repeat: initial; background-size: initial; border: 0px none; outline: 0px; padding: 0px; vertical-align: baseline;"><div class="separator" style="background-attachment: initial; background-clip: initial; background-image: initial; background-origin: initial; background-position: 0px 0px; background-repeat: initial; background-size: initial; border: 0px none; clear: both; outline: 0px; padding: 0px; text-align: center; vertical-align: baseline;">   - Pembesaran sinyal getaran <span style="background-attachment: initial; background-clip: initial; background-image: initial; background-origin: initial; background-position: 0px 0px; background-repeat: initial; background-size: initial; border: 0px none; outline: 0px; padding: 0px; vertical-align: baseline;"><div class="separator" style="background-attachment: initial; background-clip: initial; background-image: initial; background-origin: initial; background-position: 0px 0px; background-repeat: initial; background-size: initial; border: 0px none; clear: both; outline: 0px; padding: 0px; text-align: center; vertical-align: baseline;">   - Penyaringan sinyal getaran dari sinyal pengganggu. <span style="background-attachment: initial; background-clip: initial; background-image: initial; background-origin: initial; background-position: 0px 0px; background-repeat: initial; background-size: initial; border: 0px none; outline: 0px; padding: 0px; vertical-align: baseline;"><div class="separator" style="background-attachment: initial; background-clip: initial; background-image: initial;

background-origin: initial; background-position: 0px 0px; background-repeat: initial; background-size: initial; border: 0px none; clear: both; outline: 0px; padding: 0px; text-align: center; vertical-align: baseline;">   - Penguraian sinyal, dan lainnya. </blockquote> <span style="background-attachment: initial; background-clip: initial; background-image: initial; background-origin: initial; background-position: 0px 0px; background-repeat: initial; background-size: initial; border: 0px none; outline: 0px; padding: 0px; vertical-align: baseline;"><span style="background-attachment: initial; background-clip: initial; background-image: initial; background-origin: initial; background-position: 0px 0px; background-repeat: initial; background-size: initial; border: 0px none; outline: 0px; padding: 0px; vertical-align: baseline;"><span style="background-attachment: initial; background-clip: initial; background-image: initial; background-origin: initial; background-position: 0px 0px; background-repeat: initial; background-size: initial; border: 0px none; outline: 0px; padding: 0px; vertical-align: baseline;"><span style="background-attachment: initial; background-clip: initial; background-image: initial; background-origin: initial; background-position: 0px 0px; background-repeat: initial; background-size: initial; border: 0px none; outline: 0px; padding: 0px; vertical-align: baseline;"><div class="separator" style="background-attachment: initial; background-clip: initial; background-image: initial; background-origin: initial; background-position: 0px 0px; background-repeat: initial; background-size: initial; border: 0px none; clear: both; outline: 0px; padding: 0px; text-align: center; vertical-align: baseline;"> Sensor getaran dipilih sesuai dengan jenis sinyal getaran yang akan dipantau. Karena itu, sensor getaran dapat dibedakan menjadi:
/> <blockquote style="border: medium none; font-family: "Times New Roman"; margin: 0px 0px 0px 40px; padding: 0px; text-align: left;"> <span style="background-attachment: initial; background-clip: initial; background-image: initial; background-origin: initial; background-position: 0px 0px; background-repeat: initial; background-size: initial; border: 0px none; outline: 0px; padding: 0px; vertical-align: baseline;"><div class="separator" style="background-attachment: initial; background-clip: initial; background-image: initial; background-origin: initial; background-position: 0px 0px; background-repeat: initial; background-size: initial; border: 0px none; clear: both; outline: 0px; padding: 0px; text-align: center; vertical-align: baseline;">   - Sensor penyimpangan getaran (displacement transducer) <span style="background-attachment: initial; background-clip: initial; background-image: initial; background-origin: initial; background-position: 0px 0px; background-repeat: initial; background-size: initial; border: 0px none; outline: 0px; padding: 0px; vertical-align: baseline;"><div class="separator" style="background-attachment: initial; background-clip: initial; background-image: initial; background-origin: initial; background-position: 0px 0px; background-repeat: initial; background-size: initial; border: 0px none; clear: both; outline: 0px; padding: 0px; text-align: center; vertical-align: baseline;">   - Sensor kecepatan getaran (velocity tranducer) <span

style="background-attachment: initial; background-clip: initial; background-image: initial; background-origin: initial; background-position: 0px 0px; background-repeat: initial; background-size: initial; border: 0px none; outline: 0px; padding: 0px; vertical-align: baseline;"><div class="separator" style="background-attachment: initial; background-clip: initial; background-image: initial; background-origin: initial; background-position: 0px 0px; background-repeat: initial; background-size: initial; border: 0px none; clear: both; outline: 0px; padding: 0px; text-align: center; vertical-align: baseline;">   - Sensor percepatam getaran (accelerometer). </blockquote> <span style="background-attachment: initial; background-clip: initial; background-image: initial; background-origin: initial; background-position: 0px 0px; background-repeat: initial; background-size: initial; border: 0px none; outline: 0px; padding: 0px; vertical-align: baseline;"><span style="background-attachment: initial; background-clip: initial; background-image: initial; background-origin: initial; background-position: 0px 0px; background-repeat: initial; background-size: initial; border: 0px none; outline: 0px; padding: 0px; vertical-align: baseline;"><span style="background-attachment: initial; background-clip: initial; background-image: initial; background-origin: initial; background-position: 0px 0px; background-repeat: initial; background-size: initial; border: 0px none; outline: 0px; padding: 0px; vertical-align: baseline;"><span style="background-attachment: initial; background-clip: initial; background-image: initial; background-origin: initial; background-position: 0px 0px; background-repeat: initial; background-size: initial; border: 0px none; outline: 0px; padding: 0px; vertical-align: baseline;"><div class="separator" style="background-attachment: initial; background-clip: initial; background-image: initial; background-origin: initial; background-position: 0px 0px; background-repeat: initial; background-size: initial; border: 0px none; clear: both; outline: 0px; padding: 0px; text-align: center; vertical-align: baseline;"> Pemilihan sensor getaran untuk keperluan pemantauan sinyal getaran didasarkan atas pertimbangan berikut:
 <blockquote style="border: medium none; font-family: "Times New Roman"; margin: 0px 0px 0px 40px; padding: 0px; text-align: left;"> <span style="background-attachment: initial; background-clip: initial; background-image: initial; background-origin: initial; background-position: 0px 0px; background-repeat: initial; background-size: initial; border: 0px none; outline: 0px; padding: 0px; vertical-align: baseline;"><div class="separator" style="background-attachment: initial; background-clip: initial; background-image: initial; background-origin: initial; background-position: 0px 0px; background-repeat: initial; background-size: initial; border: 0px none; clear: both; outline: 0px; padding: 0px; text-align: center; vertical-align: baseline;">   - Jenis sinyal getaran <span style="background-attachment: initial; background-clip: initial; background-image: initial; background-origin: initial; background-position: 0px 0px; background-repeat: initial; background-size: initial; border: 0px none; outline: 0px; padding: 0px; vertical-align: baseline;"><div class="separator" style="background-attachment: initial; background-clip: initial; background-image: initial; background-origin: initial; background-position: 0px 0px; background-repeat: initial; background-size:

initial; border: 0px none; clear: both; outline: 0px; padding: 0px; text-align: center; vertical-align: baseline;">   - Rentang frekuensi pengukuran <span style="background-attachment: initial; background-clip: initial; background-image: initial; background-origin: initial; background-position: 0px 0px; background-repeat: initial; background-size: initial; border: 0px none; outline: 0px; padding: 0px; vertical-align: baseline;"><div class="separator" style="background-attachment: initial; background-clip: initial; background-image: initial; background-origin: initial; background-position: 0px 0px; background-repeat: initial; background-size: initial; border: 0px none; clear: both; outline: 0px; padding: 0px; text-align: center; vertical-align: baseline;">   - Ukuran dan berat objek getaran. <span style="background-attachment: initial; background-clip: initial; background-image: initial; background-origin: initial; background-position: 0px 0px; background-repeat: initial; background-size: initial; border: 0px none; outline: 0px; padding: 0px; vertical-align: baseline;"><div class="separator" style="background-attachment: initial; background-clip: initial; background-image: initial; background-origin: initial; background-position: 0px 0px; background-repeat: initial; background-size: initial; border: 0px none; clear: both; outline: 0px; padding: 0px; text-align: center; vertical-align: baseline;">   - Sensitivitas sensor </blockquote> <span style="background-attachment: initial; background-clip: initial; background-image: initial; background-origin: initial; background-position: 0px 0px; background-repeat: initial; background-size: initial; border: 0px none; outline: 0px; padding: 0px; vertical-align: baseline;"><span style="background-attachment: initial; background-clip: initial; background-image: initial; background-origin: initial; background-position: 0px 0px; background-repeat: initial; background-size: initial; border: 0px none; outline: 0px; padding: 0px; vertical-align: baseline;"><span style="background-attachment: initial; background-clip: initial; background-image: initial; background-origin: initial; background-position: 0px 0px; background-repeat: initial; background-size: initial; border: 0px none; outline: 0px; padding: 0px; vertical-align: baseline;"><span style="background-attachment: initial; background-clip: initial; background-image: initial; background-origin: initial; background-position: 0px 0px; background-repeat: initial; background-size: initial; border: 0px none; outline: 0px; padding: 0px; vertical-align: baseline;"><span style="background-attachment: initial; background-clip: initial; background-image: initial; background-origin: initial; background-position: 0px 0px; background-repeat: initial; background-size: initial; border: 0px none; outline: 0px; padding: 0px; vertical-align: baseline;"><div class="separator" style="background-attachment: initial; background-clip: initial; background-image: initial; background-origin: initial; background-position: 0px 0px; background-repeat: initial; background-size: initial; border: 0px none; clear: both; outline: 0px; padding: 0px; text-align: center; vertical-align: baseline;"> Berdasarkan cara kerjanya sensor dapat dibedakan menjadi:
 <blockquote style="border: medium none;

font-family: "Times New Roman"; margin: 0px 0px 0px 40px; padding: 0px; text-align: left;"> <span style="background-attachment: initial; background-clip: initial; background-image: initial; background-origin: initial; background-position: 0px 0px; background-repeat: initial; background-size: initial; border: 0px none; outline: 0px; padding: 0px; vertical-align: baseline;"><div class="separator" style="background-attachment: initial; background-clip: initial; background-image: initial; background-origin: initial; background-position: 0px 0px; background-repeat: initial; background-size: initial; border: 0px none; clear: both; outline: 0px; padding: 0px; text-align: center; vertical-align: baseline;">   - Sensor aktif, yakni sensor yang langsung menghasilkan tegangan listrik tanpa perlu catu daya <span style="background-attachment: initial; background-clip: initial; background-image: initial; background-origin: initial; background-position: 0px 0px; background-repeat: initial; background-size: initial; border: 0px none; outline: 0px; padding: 0px; vertical-align: baseline;"><div class="separator" style="background-attachment: initial; background-clip: initial; background-image: initial; background-origin: initial; background-position: 0px 0px; background-repeat: initial; background-size: initial; border: 0px none; clear: both; outline: 0px; padding: 0px; text-align: center; vertical-align: baseline;">   (power supply) dari luar, misalnya Velocity Transducer. <span style="background-attachment: initial; background-clip: initial; background-image: initial; background-origin: initial; background-position: 0px 0px; background-repeat: initial; background-size: initial; border: 0px none; outline: 0px; padding: 0px; vertical-align: baseline;"><div class="separator" style="background-attachment: initial; background-clip: initial; background-image: initial; background-origin: initial; background-position: 0px 0px; background-repeat: initial; background-size: initial; border: 0px none; clear: both; outline: 0px; padding: 0px; text-align: center; vertical-align: baseline;">   - Sensor pasif yakni sensor yang memerlukan catu daya dari luar agar dapat berkerja. </blockquote></td></tr></tbody></table> - Sound Sensor<div class="separator" style="background: rgb(255, 255, 255) 0px 0px; border: 0px none; clear: both; color: #505050; font-family: Poppins, sans-serif; font-size: 15px; outline: 0px; padding: 0px; vertical-align: baseline;">
 <img border="0"

data-original-height="1000" data-original-width="1000" height="200" src="https://1.bp.blogspot.com/-W0ppSeQ7cgc/X8RIa6RR_sI/AAAAAAAAEPs/TrGRzJPUzeEFaNBsQAWKPodq_PzpizrkACLcBGAsYHQ/w200-h200/sound-sensor.jpg" style="background: 0px 0px; border: 0px none; box-shadow: rgba(0, 0, 0, 0.1) 1px 1px 5px; max-width: 100%; outline: 0px; padding: 0px; position: relative; vertical-align: baseline;" width="200" /> Sensor Suara adalah sensor yang memiliki cara kerja merubah besaran suara menjadi besaran listrik. Pada dasarnya prinsip kerja pada alat ini hampir mirip dengan cara kerja sensor sentuh pada perangkat seperti telepon genggam, laptop, dan notebook. Sensor ini bekerja berdasarkan besar kecilnya kekuatan gelombang suara yang mengenai membran sensor yang menyebabkan bergeraknya membran sensor yang memiliki kumparan kecil dibalik membran tersebut naik dan turun. Kecepatan gerak kumparan tersebut menentukan kuat lemahnya gelombang listrik yang dihasilkannya. Spesifikasi :<br style="margin: 0px; padding: 0px; text-align: start;" /><ul style="background: 0px 0px; border: 0px none; line-height: 1.5; list-style: none; margin: 0px 0px 20px 20px; outline: 0px; padding: 0px; text-align: start; vertical-align: baseline;"><li style="background: 0px 0px; border: 0px none; line-height: 1.5; list-style: none; margin: 5px 0px; outline: 0px; padding: 0px; vertical-align: baseline;">Sensitivitas dapat diatur (pengaturan manual pada potensiometer)
<li style="background: 0px 0px; border: 0px none; line-height: 1.5; list-style: none; margin: 5px 0px; outline: 0px; padding: 0px; vertical-align: baseline;">Condeser yang digunakan memiliki sensitivitas yang tinggi
<li style="background: 0px 0px; border: 0px none; line-height: 1.5; list-style: none; margin: 5px 0px; outline: 0px; padding: 0px; vertical-align: baseline;">Tegangan kerja antara 3.3V – 5V
<li style="background: 0px 0px; border: 0px none; line-height: 1.5; list-style: none; margin: 5px 0px; outline: 0px; padding: 0px; vertical-align: baseline;">Terdapat 2 pin keluaran yaitu tegangan analog dan Digital output
<li style="background: 0px 0px; border: 0px none; line-height: 1.5; list-style: none; margin: 5px 0px; outline: 0px; padding: 0px; vertical-align: baseline;">Sudah terdapat lubang baut untuk instalasi
<li style="background: 0px 0px; border: 0px none; line-height: 1.5; list-style: none; margin: 5px 0px; outline: 0px; padding: 0px; vertical-align: baseline;">Sudah terdapat indikator led <div class="separator" style="background: rgb(255, 255, 255) 0px 0px; border: 0px none; clear: both; color: #505050; font-family: Poppins, sans-serif; font-size: 15px; outline: 0px; padding: 0px; vertical-align: baseline;">Konfigurasi pin: <p class="MsoNormal" style="background: white; border: 0px none; color: #505050; font-family: times; font-size: small; line-height: 20.25pt; margin: 0in 0in 0in 42.55pt; outline: 0px; padding: 0px; text-align: justify; vertical-align: baseline;"></p><div class="separator" style="background: rgb(255, 255, 255) 0px 0px; border: 0px none; clear: both; color: #505050; font-family: Poppins, sans-serif; font-size: 15px; outline: 0px;

padding: 0px; vertical-align: baseline;"> Grafik:

- IC 74157 <p class="MsoNormal" style="border: 0px none; color: #444444; font-stretch: inherit; font-variant-east-asian: inherit; font-variant-numeric: inherit; line-height: inherit; margin: 1.5em 0px; max-height: 10000000em; padding: 0px; text-align: left; vertical-align: baseline;">
</p><p class="MsoNormal" style="border: 0px none; color: #444444; font-stretch: inherit; font-variant-east-asian: inherit; font-variant-numeric: inherit; line-height: inherit; margin: 1.5em 0px; max-height: 10000000em; padding: 0px; text-align: left; vertical-align: baseline;"><span style="border: 0px none; font-stretch: inherit; font-style: inherit; font-variant: inherit; font-weight: inherit; line-height: 28px; margin: 0px; max-height: 10000000em; padding: 0px; vertical-align: baseline;"><span style="border: 0px none; font-stretch: inherit; font-style: inherit; font-variant: inherit; font-weight: inherit; line-height: inherit; margin: 0px; max-height: 10000000em; padding: 0px; vertical-align: baseline;"></p><div class="separator" style="border: 0px none; clear: both;

color: #444444; font-stretch: inherit; font-variant-east-asian: inherit; font-variant-numeric: inherit; line-height: inherit; margin: 0px; max-height: 10000000em; padding: 0px; text-align: center; vertical-align: baseline;"><a
href="https://1.bp.blogspot.com/-oFKeukOrb7o/YBOojnzIZDI/AAAAAAAAMt4/UV4g22oyYO8jp_WqP18X8vhpK8zYm5aSQCLcBGAsYHQ/s627/pin%2Bic%2B74157.jpg" style="border: 0px none; color: #3b3b3b; font-stretch: inherit; font-style: inherit; font-variant: inherit; font-weight: inherit; line-height: inherit; margin: 0px 1em; max-height: 10000000em; outline: none; padding: 0px; text-decoration-line: none; transition: all 0.2s ease 0s; vertical-align: baseline;"><img alt="74157 data selector multiplexer pin configuration" border="0" data-original-height="548" data-original-width="627" height="365"
src="https://1.bp.blogspot.com/-oFKeukOrb7o/YBOojnzIZDI/AAAAAAAAMt4/UV4g22oyYO8jp_WqP18X8vhpK8zYm5aSQCLcBGAsYHQ/w417-h365/pin%2Bic%2B74157.jpg" style="background: rgb(255, 255, 255); border: 0px none; box-shadow: rgba(0, 0, 0, 0.1) 1px 1px 5px; font-stretch: inherit; font-style: inherit; font-variant: inherit; font-weight: inherit; height: auto; line-height: inherit; margin: 0px; max-height: 10000000em; max-width: 100%; outline: none; padding: 0px; position: relative; vertical-align: baseline;" title="Konfigurasi pin multiplekser 74157 data selektor" width="417" /> <br style="color: #444444; margin: 0px; max-height: 10000000em; padding: 0px; text-align: left;" /><o:p style="color: #444444; margin: 0px; max-height: 10000000em; padding: 0px; text-align: left;"></o:p><p style="border: 0px none; color: #444444; font-stretch: inherit; font-variant-east-asian: inherit; font-variant-numeric: inherit; line-height: inherit; margin: 1.5em 0px; max-height: 10000000em; padding: 0px; text-align: left; vertical-align: baseline;"></p><p class="MsoNormal" style="border: 0px none; color: #444444; font-stretch: inherit; font-variant-east-asian: inherit; font-variant-numeric: inherit; line-height: inherit; margin: 1.5em 0px; max-height: 10000000em; padding: 0px; vertical-align: baseline;"><span style="border: 0px none; font-stretch: inherit; font-style: inherit; font-variant: inherit; font-weight: inherit; line-height: 28px; margin: 0px; max-height: 10000000em; padding: 0px; vertical-align: baseline;">IC 74157 merupakan IC multiplekser yang memiliki empat buah data selektor. Setiap data selektor mempunyai dua saluran masukan (A dan B) dan satu keluaran (Y).<o:p style="margin: 0px; max-height: 10000000em; padding: 0px;"></o:p></p><p class="MsoNormal" style="border: 0px none; color: #444444; font-stretch: inherit; font-variant-east-asian: inherit; font-variant-numeric: inherit; line-height: inherit; margin: 1.5em 0px; max-height: 10000000em; padding: 0px; vertical-align: baseline;"></p><div class="separator" style="border: 0px none; clear: both; color: #444444; font-stretch: inherit; font-variant-east-asian: inherit; font-variant-numeric: inherit; line-height: inherit; margin: 0px; max-height: 10000000em; padding: 0px; text-align: center; vertical-align: baseline;"><a
href="https://1.bp.blogspot.com/-O6tGeD1QDys/YBOo2wkE6lI/AAAAAAAAMuA/o01bHTgzCZoNejdUef7HqwgLyMYvYKTlQCLcBGAsYHQ/s457/Tabel%2Bkebenaran%2Bmultiplekser%2B74157.jpg"
style="border: 0px none; color: #46ace0; font-stretch: inherit; font-style: inherit; font-variant: inherit; font-weight: inherit; line-height: inherit; margin: 0px 1em; max-height: 10000000em; outline: none; padding: 0px; text-decoration-line: none; transition: all 0.2s ease 0s; vertical-align: baseline;"><img alt="74157 multiplexer truth table for data selectors" border="0" data-original-height="286" data-original-width="457" height="200"
src="https://1.bp.blogspot.com/-O6tGeD1QDys/YBOo2wkE6lI/AAAAAAAAMuA/o01bHTgzCZoNejdUef7H

qwgLyMYvYKTlQCLcBGAsYHQ/w320-h200/Tabel%2Bkebenaran%2Bmultiplekser%2B74157.jpg" style="background: rgb(255, 255, 255); border: 0px none; box-shadow: rgba(0, 0, 0, 0.1) 1px 1px 5px; font-stretch: inherit; font-style: inherit; font-variant: inherit; font-weight: inherit; height: auto; line-height: inherit; margin: 0px; max-height: 10000000em; max-width: 100%; outline: none; padding: 0px; position: relative; vertical-align: baseline;" title="Tabel kebenaran multiplekser 74157 data selektor" width="320" /> <span face="Roboto, Arial, sans-serif" style="border: 0px none; color: #444444; font-stretch: inherit; font-variant-east-asian: inherit; font-variant-numeric: inherit; line-height: 28px; margin: 0px; max-height: 10000000em; padding: 0px; text-align: left; vertical-align: baseline;"><br style="margin: 0px; max-height: 10000000em; padding: 0px;" /><p style="border: 0px none; color: #444444; font-stretch: inherit; font-variant-east-asian: inherit; font-variant-numeric: inherit; line-height: inherit; margin: 1.5em 0px; max-height: 10000000em; padding: 0px; text-align: left; vertical-align: baseline;"></p><p class="MsoNormal" style="border: 0px none; color: #444444; font-stretch: inherit; font-variant-east-asian: inherit; font-variant-numeric: inherit; line-height: inherit; margin: 1.5em 0px; max-height: 10000000em; padding: 0px; vertical-align: baseline;"><span style="border: 0px none; font-stretch: inherit; font-style: inherit; font-variant: inherit; font-weight: inherit; line-height: 28px; margin: 0px; max-height: 10000000em; padding: 0px; vertical-align: baseline;">Pada tabel kebenaran dapat dilihat bahwa:<o:p style="margin: 0px; max-height: 10000000em; padding: 0px;"></o:p></p><p class="MsoListParagraphCxSpFirst" style="border: 0px none; color: #444444; font-stretch: inherit; font-variant-east-asian: inherit; font-variant-numeric: inherit; line-height: inherit; margin: 1.5em 0px 1.5em 21.3pt; max-height: 10000000em; padding: 0px; text-align: left; text-indent: -14.2pt; vertical-align: baseline;"><span style="border: 0px none; font-stretch: inherit; font-style: inherit; font-variant: inherit; font-weight: inherit; line-height: 28px; margin: 0px; max-height: 10000000em; padding: 0px; vertical-align: baseline;"><span style="border: 0px none; font-stretch: inherit; font-style: inherit; font-variant: inherit; font-weight: inherit; line-height: inherit; margin: 0px; max-height: 10000000em; padding: 0px; vertical-align: baseline;">1.<span style="border: 0px none; font-stretch: normal; font-variant-east-asian: normal; font-variant-numeric: normal; line-height: normal; margin: 0px; max-height: 10000000em; padding: 0px; vertical-align: baseline;"> <span style="border: 0px none; font-stretch: inherit; font-style: inherit; font-variant: inherit; font-weight: inherit; line-height: 28px; margin: 0px; max-height: 10000000em; padding: 0px; vertical-align: baseline;">Jika pin Enable diberi logika HIGH, maka apapun masukan dan apapun keadaan pin Select maka keluaran akan selalu berlogika LOW.<o:p style="margin: 0px; max-height: 10000000em; padding: 0px;"></o:p></p><p class="MsoListParagraphCxSpMiddle" style="border: 0px none; color: #444444; font-stretch: inherit; font-variant-east-asian: inherit; font-variant-numeric: inherit; line-height: inherit; margin: 1.5em 0px 1.5em 21.3pt; max-height: 10000000em; padding: 0px; text-align: left; text-indent: -14.2pt; vertical-align: baseline;"><span style="border: 0px none; font-stretch: inherit; font-style: inherit; font-variant: inherit; font-weight: inherit; line-height: 28px; margin: 0px; max-height: 10000000em; padding: 0px; vertical-align: baseline;"><span style="border: 0px none; font-stretch: inherit; font-style: inherit; font-variant: inherit; font-weight: inherit; line-height: inherit; margin: 0px; max-height: 10000000em; padding: 0px; vertical-align: baseline;">2.<span style="border: 0px none; font-stretch: normal; font-variant-east-asian: normal; font-variant-numeric: normal; line-height: normal; margin: 0px; max-height: 10000000em; padding: 0px; vertical-align: baseline;"> <span style="border: 0px none; font-stretch: inherit;

font-style: inherit; font-variant: inherit; font-weight: inherit; line-height: 28px; margin: 0px; max-height: 10000000em; padding: 0px; vertical-align: baseline;">Jika pin Enable diberi logika LOW dan pin Select juga diberi logika LOW, maka masukan pada pin A akan diteruskan ke keluaran.<o:p style="margin: 0px; max-height: 10000000em; padding: 0px;"></o:p> <p class="MsoListParagraphCxSpLast" style="border: 0px none; color: #444444; font-stretch: inherit; font-variant-east-asian: inherit; font-variant-numeric: inherit; line-height: inherit; margin: 1.5em 0px 1.5em 21.3pt; max-height: 10000000em; padding: 0px; text-align: left; text-indent: -14.2pt; vertical-align: baseline;"><span style="border: 0px none; font-stretch: inherit; font-style: inherit; font-variant: inherit; font-weight: inherit; line-height: 28px; margin: 0px; max-height: 10000000em; padding: 0px; vertical-align: baseline;"><span style="border: 0px none; font-stretch: inherit; font-style: inherit; font-variant: inherit; font-weight: inherit; line-height: inherit; margin: 0px; max-height: 10000000em; padding: 0px; vertical-align: baseline;">3.<span style="border: 0px none; font-stretch: normal; font-variant-east-asian: normal; font-variant-numeric: normal; line-height: normal; margin: 0px; max-height: 10000000em; padding: 0px; vertical-align: baseline;"> <span style="border: 0px none; font-stretch: inherit; font-style: inherit; font-variant: inherit; font-weight: inherit; line-height: 28px; margin: 0px; max-height: 10000000em; padding: 0px; vertical-align: baseline;">Jika pin Enable diberi logika LOW dan pin Select juga diberi logika HIGH, maka masukan pada pin B akan diteruskan ke keluaran. <p class="MsoListParagraphCxSpLast" style="border: 0px none; color: #444444; font-stretch: inherit; font-variant-east-asian: inherit; font-variant-numeric: inherit; line-height: inherit; margin: 1.5em 0px 1.5em 21.3pt; max-height: 10000000em; padding: 0px; text-align: left; text-indent: -14.2pt; vertical-align: baseline;"><span style="border: 0px none; font-stretch: inherit; font-style: inherit; font-variant: inherit; font-weight: inherit; line-height: 28px; margin: 0px; max-height: 10000000em; padding: 0px; vertical-align: baseline;">- IC 4556 <p class="MsoListParagraphCxSpLast" style="border: 0px none; color: #444444; font-stretch: inherit; font-variant-east-asian: inherit; font-variant-numeric: inherit; line-height: inherit; margin: 1.5em 0px 1.5em 21.3pt; max-height: 10000000em; padding: 0px; text-align: left; text-indent: -14.2pt; vertical-align: baseline;">
<span style="border: 0px none; font-stretch: inherit; font-style: inherit; font-variant: inherit; font-weight: inherit; line-height: 28px; margin: 0px; max-height: 10000000em; padding: 0px; vertical-align: baseline;">
 4. Percobaan

[Kembali]
 <ul style="background-color: white; color: #222222; font-family: Georgia, Utopia, "Palatino Linotype", Palatino, serif; font-size: 15.4px; line-height: 1.4; margin: 0.5em 0px; padding: 0px

2.5em;"><li style="margin: 0px 0px 0.25em; padding: 0px;">Prosedur Percobaan
<ul style="line-height: 1.4; margin: 0.5em 0px; padding: 0px 2.5em;"><li style="margin: 0px 0px 0.25em; padding: 0px;">Tambahkan alat dan bahan yang dibutuhkan pada library
<li style="margin: 0px 0px 0.25em; padding: 0px;">Susun pada schematic capture
<li style="margin: 0px 0px 0.25em; padding: 0px;">Hubungkan tiap-tiap komponen seperti gambar dibawah
<li style="margin: 0px 0px 0.25em; padding: 0px;">Run pada proteus (arah panah menunjukkan arah arus) <ul style="background-color: white; color: #222222; font-family: Georgia, Utopia, "Palatino Linotype", Palatino, serif; font-size: 15.4px; line-height: 1.4; margin: 0.5em 0px; padding: 0px 2.5em;"><li style="margin: 0px 0px 0.25em; padding: 0px;">Foto

Prinsip Kerja:
 Pada aplikasi mux-demux ini digunakan untuk aplikasi pada keamanan laboratorium, yang mana menggunakan sensor flame, sensor sound,sensor vibration dan sensor rain.
 Sensor Flame Saat sensor flame mendeteksi adanya api, maka logicstate berlogika 1, sehingga mengeluarkan output sebesar 5V diteruskan ke input A pada demux 4556, sehingga inputannya E= 0, B=0, A= 1 yang mana jika inputnya 001, sesuai dengan truth table akan menghasilkan output 1101, sehingga Q1=0, yang mana karena demux 4556 merupakan output low, sehingga Q1 yang aktif di umpankan ke not gate sehingga outputnya 1. Lalu, diumpankan ke resistor 10k Ohm sehingga tegangan pada kaki VBE sebesar 0,78V, yang mana cukup untuk mengaktifkan transistor. Sehingga arus mengalir dari power supply, menuju relay, lalu kek kaki kolektor, kaki emitor dan ground. Karena adanya arus yang mengalir, maka relay akan berpindah ke kiri dan mengalir arus dari batrai ke alarm sebagai penanda kebakaran.
 Sensor Sound Sensor Sound mendeteksi suara alarm kebakaran, maka logicstate berlogika 1, sehingga mengeluarkan output sebesar 5V diteruskan ke input A pada demux 4556, sehingga inputannya E= 0, B=1, A= 0, yang mana jika

inputnya 010, sesuai dengan truth table akan menghasilkan output 1011, sehingga Q2=0, yang mana karena demux 4556 merupakan output low, sehingga Q2 yang aktif di umpankan ke not gate sehingga outputnya 1. Lalu, diumpankan ke resistor 10k Ohm sehingga tegangan pada kaki VBE sebesar 0,79V, yang mana cukup untuk mengaktifkan transistor. Sehingga arus mengalir dari power supply, menuju relay, lalu kek kaki kolektor, kaki emitor dan ground. Karena adanya arus yang mengalir, maka relay akan berpindah ke kiri dan mengalir arus dari batrai ke motor sebagai pompa air untuk memadamkan api.
 Sensor Rain Sensor Rain mendeteksi air yang turun dari pompa ke lantai, maka logicstate berlogika 1, sehingga mengeluarkan output sebesar 5V diteruskan ke input 1A pada mux 74157, sehingga inputannya E= 0, Select= 0, 1A= 1, yang mana jika inputnya 001, sesuai dengan truth table akan menghasilkan output 1, sehingga 1Y=1. Lalu, diumpankan ke resistor 10k Ohm sehingga tegangan pada kaki VBE sebesar 0,79V, yang mana cukup untuk mengaktifkan transistor. Sehingga arus mengalir dari power supply, menuju relay, lalu kek kaki kolektor, kaki emitor dan ground. Karena adanya arus yang mengalir, maka relay akan berpindah ke kiri dan mengalir arus dari batrai ke motor sebagai pembuka saluran air untuk mengeluarkan air.
 Sensor Vibration Saat sensor vibration mendeteksi adanya getaran, maka logicstate berlogika 1, sehingga mengeluarkan output sebesar 5V diteruskan. Lalu, diumpankan ke resistor 10k Ohm sehingga tegangan pada kaki VBE sebesar 0,78V, yang mana cukup untuk mengaktifkan transistor. Sehingga arus mengalir dari power supply, menuju relay, lalu kek kaki kolektor, kaki emitor dan ground. Karena adanya arus yang mengalir, maka relay akan berpindah ke kiri dan mengalir arus dari batrai ke alarm sebagai penanda bahwa terjadinya gempa.

5. Video

[Kembali]
 <div class="separator" style="background-color: white; clear: both; color: #222222; font-family: Georgia, Utopia, "Palatino Linotype", Palatino, serif; font-size: 15.4px; text-align: left;">a. video prinsip kerja <object class="BLOG_video_class" contentid="31d24ac63932608d" height="266" id="BLOG_video-31d24ac63932608d" width="320"></object> b. video rangkaian
<div class="separator" style="background-color: white; clear: both; color: #222222; font-family: Georgia, Utopia, "Palatino Linotype", Palatino, serif; font-size: 15.4px; text-align: left;">

 <iframe allowfullscreen="" class="BLOG_video_class" height="266"

src="https://www.youtube.com/embed/LO9161t0cBc" width="320" youtube-src-id="LO9161t0cBc"></iframe>

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

6. Download Link

[Kembali]

/>
 Download HTML Download V<u>ideo Rangkaian
</u> Download V<u>ideo</u> prinsip kerja Download Rangkaian Simulasi Download datasheet resistor Download datasheet transistor BC 547 Download datasheet LED <a

href="https://drive.google.com/uc?export=download&id=1xuwxT0PbWkfdaANckNyGDwTj5SIGeNOA">Download datasheet motor dc <a
href="https://drive.google.com/uc?export=download&id=16JoS3eEVThdjHAMn30Lyf8w_CpmfQccm">Download datasheet buzzer <a
href="https://drive.google.com/uc?export=download&id=1o4ObvSjkhI-OTbnvGVaWnqDL-z4EWs_O">Download datasheet relay <a
href="https://drive.google.com/uc?export=download&id=1yxARkjr-3F3KFOQhqFajDMuxa82E76Ke">Download datasheet dioda <a
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href="https://drive.google.com/uc?export=download&id=1zzmg20FT2dXfcYrxucMBcVT4OdAWm-Kw">Download library Sound sensor <div style="font-family: "Times New

Roman";"><a
href="https://drive.google.com/uc?export=download&id=1VOjsmZoGhmGSLv5DdnOO_7dAE8Yds5xd">Download library sensor flame <a
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href="https://drive.google.com/uc?export=download&id=1_fqR3kJYxcOTUhLPeHL4YevwCD_PaJE1">Download library sensor vibration