

<h2>Modul 3 Komunikasi</h2>

[KEMBALI KE MENU SEBELUMNYA]

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<a href="https://natasyaacr211037.blogspot.com/2024/05/laporan-akhir-modul-3-percobaaan-2.

html#G">7. Download File

  <h2>1. Prosedur [kembali]</h2> <ul style="text-align: left;">
Buatlah rangkaian sesuai dengan kondisi yang telah dipilih
Buat Program pada software Arduino IDE
Masukkan program yang telah dibuat pada software Arduino IDE sebagai library Arduino
Jalankan rangkaian, sesuai dengan kondisi yang diinginkan
Lihat output pada 7 segmen dengan mengatur dip switch
 2. Hardware dan Diagram Blok [kembali] a. Hardware

 b. Diagram Blok <img border="0" data-original-height="295"

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style="font-family: helvetica; font-size: medium; font-weight: normal;"><a
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Simulasi dan Prinsip Kerja<a
href="https://natasyaacr211037.blogspot.com/2024/05/laporan-akhir-modul-3-percobaaan-2.
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red;">[kembali]</h2> <dl style="margin-bottom: 0.5em;
margin-top: 0.2em;"> <div
class="separator" style="clear: both; text-align: left;">a.
Rangkaian Simulasi <div class="separator" style="clear: both; text-align:
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5646.png" width="367" /> <div class="separator" style="clear: both; text-align:
center;">
 <span
style="font-family: helvetica;">b. Prinsip Kerja <div class="separator"
style="clear: both; text-align: center;"><div class="separator" style="clear: both; text-align:
justify;">Dari perobaan 2 diatas, <span
style="background-color: white;">kita menggunakan dip switch sebagai inputan dan dual
seven segment sebagai output. Selanjutnya juga menggunakan 2 buah modul, pertama
arduino master sebagai pemberi perintah dan arduino slave sebagai penerima/pengeksekusi
perintah. Arduino master terhubung dengan inputan dip switch dan arduino slave terhubung
dengan dual seven segment sebagai output. Pada percobaan ini menggunakan komunikasi
SPI yang ditandai dengan pin MOSI, MISO, SCLK, SS/CS pada kedua modul saling
terhubung. <div class="separator" style="clear: both; text-align:
center;"> <span
style="background-color: white;">
 <div class="separator" style="clear: both; text-align:
center;"> <span
style="background-color: white;">Sesuai dengan

program yang telah diinputkan pada arduino ide, dimana layar dual seven segmen akan menampilkan angka yang sesuai dengan kondisi yang diinputkan pada dipswtich. Jadi jika kita mengaktifkan pin 1 dipswitch maka akan menampilkan angka 1 pada seven segmen.
 4. Flowchart dan Listing Program [kembali] a. Flowchart Arduino Master
 Arduino Slave
 b. Listing Program <div class="separator" style="clear: both; text-align:

center;"> Arduino Master <spi .h=""> //Master Arduino #include //Library for SPI int dip[] = {2,3,4,5,6,7,8,9}; int dipvalue[] = {}; void setup (){ Serial.begin(9600); //Starts Serial Communication at Baud Rate 115200 for(int i = 0; i < 8; i++){ pinMode(dip[i], INPUT_PULLUP); } SPI.begin(); //Begins the SPI commnuication SPI.setClockDivider(SPI_CLOCK_DIV8); //Sets clock for SPI communication at 8 (16/8=2Mhz) digitalWrite(SS,HIGH); // Setting SlaveSelect as HIGH (So master doesnt connnect with slave) } void loop(void){ byte Mastersend; int x = 1; for(int i = 0; i < 8; i++){ dipvalue[i] = digitalRead(dip[i]<span style="color:

#434f54;">); if(dipvalue[i] == LOW){ x = dip[i]; } } digitalWrite(SS, LOW); //Starts communication with Slave connected to master   Mastersend = x; Serial.println(Mastersend); SPI.transfer(Mastersend); //Send the mastersend value to slave also receives value from slave delay(1000); } </spi>
 Arduino Slave //Slave Arduino: #include<SPI.h> const int segmentPins[] = {9, 8, 7, 6, 5, 4, 3, 2}; volatile boolean received = false; volatile byte Slavereceived; int index; void setup(){ Serial.begin(9600); for (int i = 0; i < 8; i++) { pinMode(segmentPins[i], OUTPUT<span style="color:

#434f54;">); <span style="color:
#434f54;">} SPCR |= <span style="color:
#d35400;">_BV(SPE<span style="color:
#434f54;">); //Turn on SPI in Slave
Mode SPI.<span
style="color: #d35400;">attachInterrupt<span style="color:
#434f54;">(); //Interuupt ON is set for SPI
commnucation } <span
style="color: #d35400;">ISR <span style="color:
#434f54;">(SPI_STC_vect){<span
style="color: #95a5a6;"> //Inerrrput routine function Slavereceived
= SPDR; // Value received from master if store in variable
slavereceived received = <span style="color:
#005c5f;">true; //Sets received as True
} <span style="color:
#00979d;">void loop<span style="color:
#434f54;">(){ Serial.<span
style="color: #d35400;">println<span style="color:
#434f54;">(Slavereceived<span style="color:
#434f54;">); if<span
style="color: #434f54;">(received){<span
style="color: #95a5a6;">//Logic to SET LED ON OR OFF depending upon the value
recerived from master <span style="color:
#d35400;">displayCharacter<span style="color:
#434f54;">(Slavereceived<span style="color:
#434f54;">); delay<span
style="color: #434f54;">(1000<span
style="color: #434f54;">); <span style="color:
#434f54;">} } <span
style="color: #00979d;">void <span style="color:
#d35400;">displayCharacter(<span
style="color: #00979d;">int ch) <span
style="color: #434f54;">{ byte <span style="color:
#d35400;">patterns[10][<span style="color:
#005c5f;">7] = { <span
style="color: #434f54;">{0, <span
style="color: #005c5f;">0, 0, <span
style="color: #005c5f;">0, 0, <span
style="color: #005c5f;">0, 1<span
style="color: #434f54;">}, //
0 {<span style="color:
#005c5f;">1, 0, <span style="color:
#005c5f;">0, 1, <span style="color:
#005c5f;">1, 1, <span style="color:
#005c5f;">1},
// 1 {<span style="color:
#005c5f;">0, 0, <span style="color:
#005c5f;">1, 0, <span style="color:

#005c5f;">0, 1, <span style="color:
#005c5f;">0},
// 2 {<span style="color:
#005c5f;">0, 0, <span style="color:
#005c5f;">0, 0, <span style="color:
#005c5f;">1, 1, <span style="color:
#005c5f;">0},
// 3 {<span style="color:
#005c5f;">1, 0, <span style="color:
#005c5f;">0, 1, <span style="color:
#005c5f;">1, 0, <span style="color:
#005c5f;">0},
// 4 {<span style="color:
#005c5f;">0, 1, <span style="color:
#005c5f;">0, 0, <span style="color:
#005c5f;">1, 0, <span style="color:
#005c5f;">0},
// 5 {<span style="color:
#005c5f;">0, 1, <span style="color:
#005c5f;">0, 0, <span style="color:
#005c5f;">0, 0, <span style="color:
#005c5f;">0},
// 6 {<span style="color:
#005c5f;">0, 0, <span style="color:
#005c5f;">0, 1, <span style="color:
#005c5f;">1, 1, <span style="color:
#005c5f;">1},
// 7 {<span style="color:
#005c5f;">0, 0, <span style="color:
#005c5f;">0, 0, <span style="color:
#005c5f;">0, 0, <span style="color:
#005c5f;">0},
// 8 {<span style="color:
#005c5f;">0, 0, <span style="color:
#005c5f;">0, 0, <span style="color:
#005c5f;">1, 0, <span style="color:
#005c5f;">0}
// 9 <span style="color:
#434f54;">}; if <span
style="color: #434f54;">((ch >= 0
&& ch <= 9<span style="color:
#434f54;">)) { <span style="color:
#95a5a6;"> // Get the digit index (0-9) from the
character int index =
ch; // Write the pattern to the segment
pins for <span
style="color: #434f54;">(int i = <span
style="color: #005c5f;">0; i < 7; i++<span

style="color: #434f54;">) <span style="color:
#434f54;">{ <span style="color:
#d35400;">digitalWrite(<span style="color:
#d35400;">segmentPins[i], <span style="color:
#d35400;">patterns[index][i]<span style="color:
#434f54;">); <span style="color:
#434f54;">} <span style="color:
#434f54;">} <span style="color:
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href="https://natasyaacr211037.blogspot.com/2024/05/laporan-akhir-modul-3-percobaaan-2.
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background-image: initial; background-origin: initial; background-position: initial;
background-repeat: initial; background-size: initial; color: #2196f3; text-decoration-line:
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