# DAFTAR PUSTAKA


Ahmad Rohman, I. Y. (2016). *APLIKASI ASISTEN PRAKTIKUM MENGGUNAKAN NODEJS DAN DATABASE MONGODB*. http://eprints.akakom.ac.id/id/eprint/5752

Ariani, F., Vandika, A. Y., & Widjaya, H. (2019). Implementasi Alat Pemberi Pakan Ternak Menggunakan Iot Untuk Otomatisasi Pemberian Pakan Ternak. *Explore: Jurnal Sistem Informasi Dan Telematika*, *10*(2). https://doi.org/10.36448/jsit.v10i2.1315

Ariyanti, D., & Wicaksono, A. (2022). *Perancangan Dan Pembangunan Sistem Keamanan Pada Kandang Sapi Berbasis Arduino Dengan Notifikasi Suara Dan Pesan Telegram Design and Development of a Security System in an Arduino-Based Cattle Barn with Voice Notifications and Telegram Messages*. *1*(December), 123–128.

Balai Penelitian Ternak Provinsi Jawa Timur. (2018). *Ayam Kampung Unggul Balitbangtan (KUB)* (Issue 0341).

Brown, I. (2007). Standards for temperature and humidity. In *COMMERCIAL PRODUCT GUIDE* (Vol. 21, Issue 10). https://doi.org/10.1007/BF01763401

Educative.io. (n.d.). *What is Vite.js*. Retrieved February 15, 2024, from https://www.educative.io/answers/what-is-vitejs

Fenaldo Maulana, R., Ramadhan, M. A., Maharani, W., & Maulana, I. (2023). Rancang Bangun Sistem Monitoring Suhu dan Kelembapan Berbasis IOT Studi Kasus Ruang Server ITTelkom Surabaya. *Rancang Bangun Sistem Monitoring Suhu Dan Kelembapan Berbasis IOT Studi Kasus Ruang Server*

*IT Telkom Surabaya*, *1*(3), 224–231. https://doi.org/10.31004/ijmst.v1i3.169

Hidayat, M. R., Christiono, C., & Sapudin, B. S. (2018). PERANCANGAN SISTEM KEAMANAN RUMAH BERBASIS IoT DENGAN NodeMCU ESP8266 MENGGUNAKAN SENSOR PIR HC-SR501 DAN SENSOR SMOKE DETECTOR. *Kilat*, *7*(2), 139–148. https://doi.org/10.33322/kilat.v7i2.357

Kurniarum, A. (2013). ANALISIS DAN PERANCANGAN SISTEM INFORMASI. *Prawiroharjo, 1999, 2013*, 1–9.

Laksono, A. B. (2017). Rancang Bangun Sistem Pemberi Pakan Ayam Serta Monitoring Suhu dan Kelembaban Kandang Berbasis Atmega328. *Jurnal Elektro*, *2*(2), 5. https://doi.org/10.30736/je.v2i2.86

M. Adi Akbar, Ilhamsyah, I. R. (2016). SISTEM PENJADWALAN LABORATORIUM DAN MONITORING PENGGUNAAN KOMPUTER MENGGUNAKAN RFID BERBASIS TCP/IP. *Jurnal Coding Sistem Komputer Untan*, *04*(2), 184–194.

Nurkamid, M., & Widodo, A. (2021). Penerapan Wireless Sensor Network Untuk Monitoring Lingkungan Menggunakan Modul ESP-WROOM32. *Ikraith-Informatika*, *5*(3), 72–78. http://jateng.tribunnews.com

Putranta, F. S., Munadi, R., & Bisono, Y. G. (2018). Perancangan Dan Analisis Sistem Smart Lighting Berbasis Wireless Sensor Network Untuk Meningkatkan Kenyamanan Aktivitas Di Dalam Rumah. *TEKTRIKA - Jurnal Penelitian Dan Pengembangan Telekomunikasi, Kendali, Komputer, Elektrik, Dan Elektronika*, *2*(1). https://doi.org/10.25124/tektrika.v2i1.1659

Ramadhani, A. R., Bhawiyuga, A., & Siregar, R. A. (2018). *Implementasi Access Control List Berbasis Protokol MQTT pada Perangkat NodeMCU*. *2*(8), 2824–2831.

Rifaini, A., Sintaro, S., & Surahman, A. (2022). Alat Perangkap Dan Kamera Pengawas Dengan Menggunakan Esp32-Cam Sebagai Sistem Keamanan Kandang Ayam. *Jurnal Teknik Dan Sistem Komputer*, *2*(2), 52–63. https://doi.org/10.33365/jtikom.v2i2.1486

Ross. (2018). Broiler management handbook. In *Aviagen Ross Management Guide*. ROSS. www.aviagen.com

Sains, U., & Metropolia, T. (2023). *Web-sovelluksen päivittäminen Vue.js-ohjelmistokehyksellä*.

Susatyono, J. D., & Fitrianto, Y. (2021). Sistem Monitoring Kualitas Udara dan Otomatisasi Pemberian Pakan Ayam Berbasis IoT. *Krea-TIF*, *9*(2), 1. https://doi.org/10.32832/kreatif.v9i2.5650

## LAMPIRAN

### Lampiran 1 *Datasheet* ESP32-WROOM-32UEU

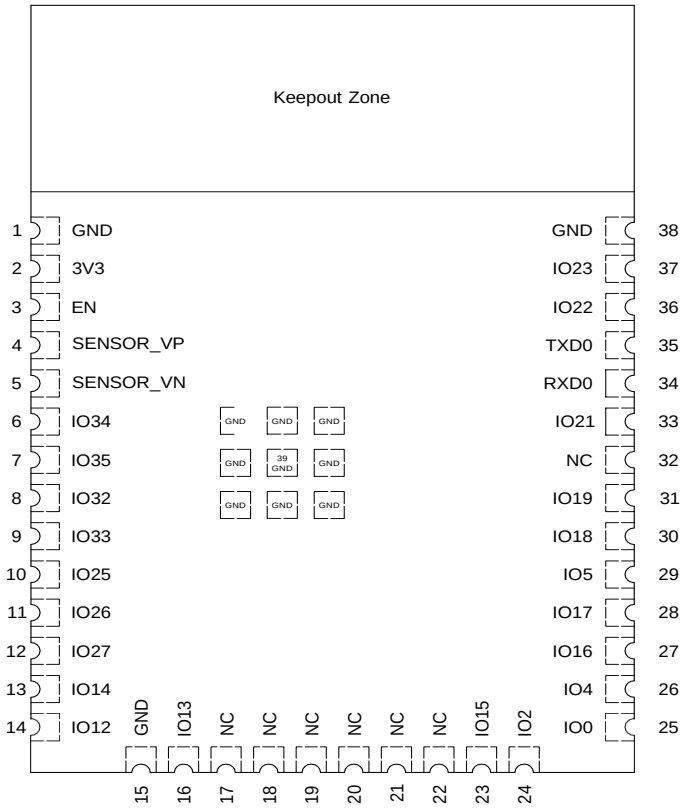


Figure 1 Pin *Layout ESP32* t (*Top View*)

| *Name* | *No.* | *Type*[1] | *Function* |
|---|---|---|---|
| GND | 1 | P | *Ground* |
| 3V3 | 2 | P | *Power supply* |
| EN | 3 | I | *High*: *On*; *enables the chip Low*: *Off*; *the chip shuts down*<br><br>*Note*: *Do not leave the pin floating.* |
| SENSOR_ VP | 4 | I | GPIO36, ADC1_CH0, RTC_GPIO0 |
| SENSOR_ | 5 | I | GPIO39, ADC1_CH3, RTC_GPIO3 |

| | | | |
|---|---|---|---|
| VN | | | |
| IO34 | 6 | I | GPIO34, ADC1_CH6, RTC_GPIO4 |
| IO35 | 7 | I | GPIO35, ADC1_CH7, RTC_GPIO5 |
| IO32 | 8 | I/O | GPIO32, XTAL_32K_P (32.768 kHz *crystal oscillator input*), ADC1_CH4,<br><br>TOUCH9, RTC_GPIO9 |
| IO33 | 9 | I/O | GPIO33, XTAL_32K_N (32.768 kHz *crystal oscillator output*),<br><br>ADC1_CH5, TOUCH8, RTC_GPIO8 |
| IO25 | 10 | I/O | GPIO25, DAC_1, ADC2_CH8, RTC_GPIO6, EMAC_RXD0 |
| IO26 | 11 | I/O | GPIO26, DAC_2, ADC2_CH9, RTC_GPIO7, EMAC_RXD1 |
| IO27 | 12 | I/O | GPIO27, ADC2_CH7, TOUCH7, RTC_GPIO17, EMAC_RX_DV |
| IO14 | 13 | I/O | GPIO14, ADC2_CH6, TOUCH6, RTC_GPIO16, MTMS, HSPICLK,<br><br>HS2_CLK, SD_CLK, EMAC_TXD2 |
| IO12 | 14 | I/O | GPIO12, ADC2_CH5, TOUCH5, RTC_GPIO15, MTDI, HSPIQ,<br><br>HS2_DATA2, SD_DATA2, EMAC_TXD3 |
| GND | 15 | P | Ground |
| IO13 | 16 | I/O | GPIO13, ADC2_CH4, TOUCH4, RTC_GPIO14, MTCK, HSPID,<br><br>HS2_DATA3, SD_DATA3, EMAC_RX_ER |
| NC | 17 | - | See note [2] |
| NC | 18 - 22 | - | See note [2] |

| | | | |
|---|---|---|---|
| IO15 | 23 | I/O | GPIO15, ADC2_CH3, TOUCH3, MTDO, HSPICS0, RTC_GPIO13,<br><br>HS2_CMD, SD_CMD, EMAC_RXD3 |
| IO2 | 24 | I/O | GPIO2, ADC2_CH2, TOUCH2, RTC_GPIO12, HSPIWP, HS2_DATA0,<br><br>SD_DATA0 |
| IO0 | 25 | I/O | GPIO0, ADC2_CH1, TOUCH1, RTC_GPIO11, CLK_OUT1,<br><br>EMAC_TX_CLK |
| IO4 | 26 | I/O | GPIO4, ADC2_CH0, TOUCH0, RTC_GPIO10, HSPIHD, HS2_DATA1,<br><br>SD_DATA1, EMAC_TX_ER |
| IO16[3] | 27 | I/O | GPIO16, HS1_DATA4, U2RXD, EMAC_CLK_OUT |
| IO17 | 28 | I/O | GPIO17, HS1_DATA5, U2TXD, EMAC_CLK_OUT_180 |
| IO5 | 29 | I/O | GPIO5, VSPICS0, HS1_DATA6, EMAC_RX_CLK |
| IO18 | 30 | I/O | GPIO18, VSPICLK, HS1_DATA7 |
| IO19 | 31 | I/O | GPIO19, VSPIQ, U0CTS, EMAC_TXD0 |
| NC | 32 | - | - |
| IO21 | 33 | I/O | GPIO21, VSPIHD, EMAC_TX_EN |
| RXD0 | 34 | I/O | GPIO3, U0RXD, CLK_OUT2 |
| TXD0 | 35 | I/O | GPIO1, U0TXD, CLK_OUT3, EMAC_RXD2 |
| IO22 | 36 | I/O | GPIO22, VSPIWP, U0RTS, EMAC_TXD1 |
| IO23 | 37 | I/O | GPIO23, VSPID, HS1_STROBE |
| GND | 38 | P | Ground |

**Lampiran 2 *Datasheet* ESP32-CAM**

## 1. *Product Specifications*

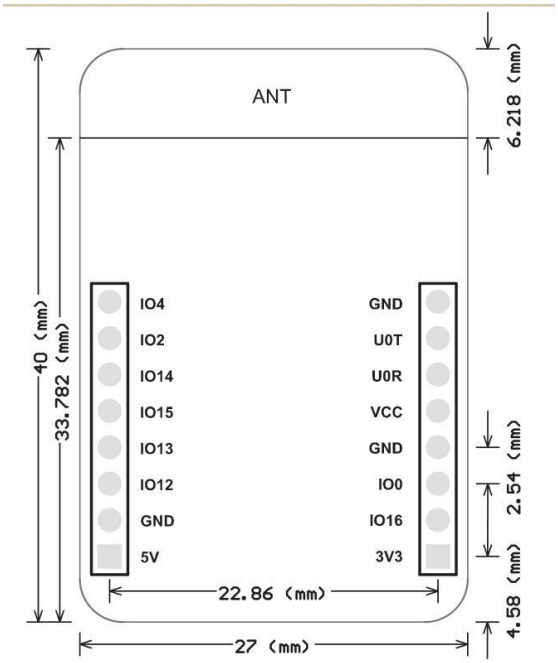


Figure 1 *Physical Modul Dimensions* ESP32CAM

## 2. ESP32-CAM *module picture output format rate*

| ***Format Size*** | ***QQVGA*** | ***QVGA*** | ***VGA*** | ***SVGA*** |
|---|---|---|---|---|
| *JPEG* | 6 | 7 | 7 | 8 |
| *BMP* | 9 | 9 | - | - |
| *GRAYSCALE* | 9 | 8 | - | - |

## 3. *Internal Pin Connect*

| ***CAM*** | ***ESP32*** | ***SD*** | ***ESP32*** |
|---|---|---|---|
| D0 | PIN5 | CLK | PIN14 |
| D1 | PIN18 | CMD | PIN15 |

| | | | |
|---|---|---|---|
| D2 | PIN19 | DATA0 | PIN2 |
| D3 | PIN21 | DATA1/*Flash lamp* | PIN4 |
| D4 | PIN36 | DATA2 | PIN12 |
| D5 | PIN39 | DATA3 | PIN13 |
| D6 | PIN34 | | |
| D7 | PIN35 | | |
| XCLK | PIN0 | | |
| PCLK | PIN22 | | |
| VSYNC | PIN25 | | |
| HREF | PIN23 | | |
| SDA | PIN26 | | |
| SCL | PIN27 | | |
| POWER PIN | PIN32 | | |

**Lampiran 3 DHT22 *Datasheet***

## 1. *Product Description*

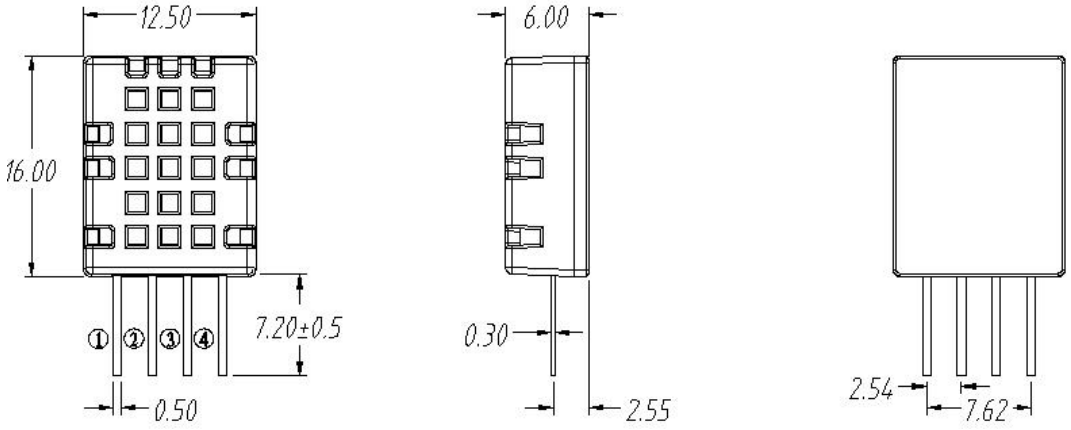


*Figure* 1 *Physical Dimensions* DH22

## 2. *Spesifications*

| | |
|---|---|
| VDD | *power supply* 3.3~6V DC |
| DATA | *serial data, single bus* |
| NC | *Empty feet* |
| GND | *Ground, negative pole of power supply* |

## 3. *Relative humidity*

| *Parameter* | *Condition* | *min* | *type* | *max* | *unit* |
|---|---|---|---|---|---|
| *Measuring range* | | 0 | | 100 | %RH |
| *Accuracy* [1] | 25℃ | | ±5 | | %RH |
| *Repeatability* | | | ±1 | | %RH |
| *Interchangeability* | *completely interchangeable* | | | | |

| | | | | | |
|---|---|---|---|---|---|
| *Response time [2]* | 1/e(63%) | | <6 | | S |
| *Hysteresis* | | | ±0.3 | | %RH |
| *drift [3]* | *Typical value* | | <±0.5 | | %RH/year |

**4. *Temperature***

| *Parameter* | *Condition* | *min* | *type* | *max* | *unit* |
|---|---|---|---|---|---|
| *Measuring range* | | -40 | | 80 | ℃ |
| *Accuracy [1]* | 25℃ | | ±2 | | ℃ |
| *Repeatability* | | | ±1 | | ℃ |
| *Interchangeability* | *completely interchangeable* | | | | |
| *Response time [2]* | 1/e(63%) | | <10 | | S |
| *Hysteresis* | | | ±0.3 | | ℃ |
| *drift [3]* | *Typical value* | | <±0.5 | | ℃/year |

**5. *Electrical characteristics***

| *Parameter* | *condition* | *min* | *type* | *max* | *unit* |
|---|---|---|---|---|---|
| *Supply voltage* | | 3.3 | 5.0 | 5.5 | ℃ |
| *Supply current* | 25℃ | 0.06 (*standby)* | - | 1.0 *(measure ment)* | ℃ |
| *The sampling period* | *Measurement* | | > 2 | | ℃ |

**Lampiran 4 HC-SR04 *Datasheet***

1. ***How Ultrasonik Sensors Work***

*How Ultrasonik Sensors Work Ultrasonik sensors use sound to determine the distance between the sensor and the closest object in its path. How do ultrasonik sensors do this? Ultrasonik sensors are essentially sound sensors, but they operate at a frequency above human hearing.*

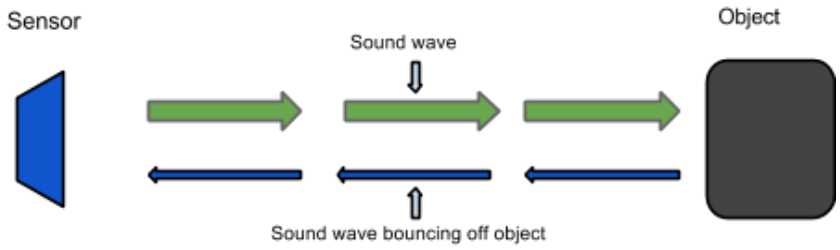


*Figure 1 How Ultrasonik Sensors Work*

2. ***Specifications***

| | |
|---|---|
| *Power Supply* | +5V DC |
| *Quiescent Current* | <2mA |
| *Working current* | 15mA |
| *Effectual Angle* | <15º |
| *Ranging Distance* | 2-400 cm |
| *Resolution* | 0.3 cm |
| *Measuring Angle* | 30º |
| *Trigger Input Pulse width* | 10uS |
| *Dimension* | 45mm x 20mm x 15mm |

**Lampiran 5 HC-SR501 *Datasheet***

## 1. *Product Descriptions*

*HC-SR501 is based on infrared technology, automatic control module, using Germany imported LHI778 probe design, high sensitivity, high reliability, ultra-low-voltage operating 'mode, widely used in various auto-sensing electrical equipment, especially for[' battery-powered automatic controlled products.*

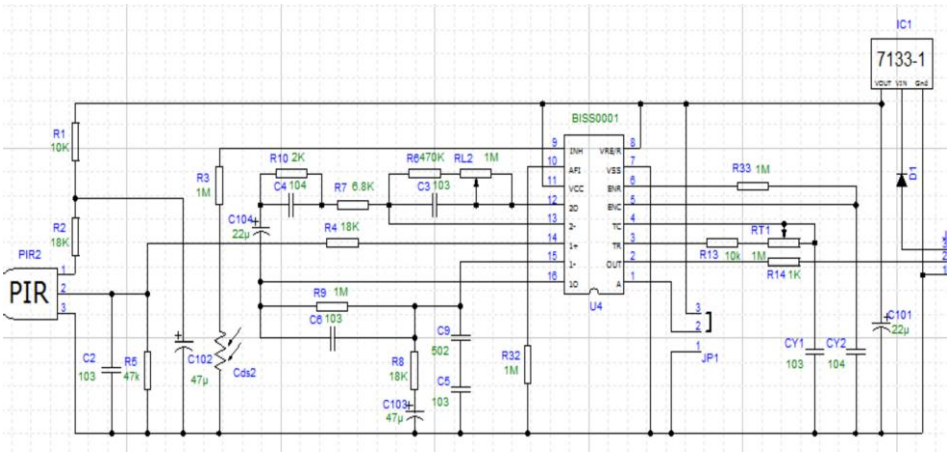


*Figure 1 Circuit schematic HC-SR501*

## 2. *Specifications :*

Tabel 7.1 HC-SR501 *Specification*

| | |
|---|---|
| *Product Type* | HC--SR501 *Body Sensor Module* |
| *Operating Voltage Range* | 5-20 |
| *Quiescent Current* | <50uA |
| *Level output* | *High* 3.3 V /*Low* 0V |
| *Trigger* | L *can not be repeated trigger/H can be repeated trigger(Default repeated trigger)* |

| | |
|---|---|
| *Delay time* | 5-300S*( adjustable) Range* (*approximately* .3Sec -5Min) |
| *Block time* | 2.5S(*default*)*Can be made a range*(0.xx to tens of *seconds* |
| *Board Dimensions* | 32mm*24mm |
| *Angle Sensor* | <110 ° *cone angle* |
| *Operation Temp.* | -15-+70 *degrees* |
| *Lens size sensor* | *Diameter*:23mm(*Default*) |

**Lampiran 6 *Water Level Sensor Datasheet***

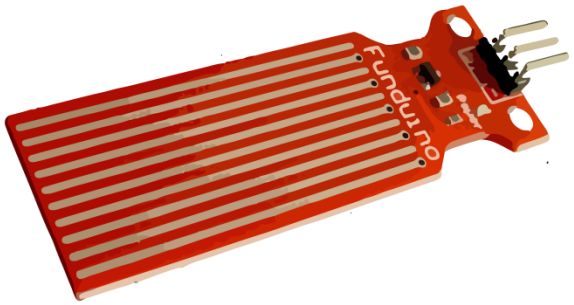


*Figure* 1 *Phisical Dimention of the Water Level Sensor*

**1. *The specification parameters***

a. *Product Name : water level sensor*

b. *Item* : K-0135

c. *Operating voltage* :. DC 5V

d. *Working current* : *less than* 20mA

e. *Sensor Type* : *Analog*

f. *detection area* :. 40mm x16mm

g. *Production process* :. FR4 double-sided HASL

h. *Mounting hole size* : 3.0mm

i. *User-friendly design : half-moon -slip handle depression*

j. *Working temperature* :. 10 ℃ -30 ℃

k. *Operating Humidity* : 10% ~ 90 % *non –condensing*

l. *Weight* :. 3g

m. *Product Dimensions* : 65mm x 20mm x 8mm

**Lampiran 7 SONGLE RELAY *Datasheet***

1. ***Main Features***

- *Switching capacity available by 10A in spite of small size design for highdensity P.C. board mounting technique.*
- UL,CUL,TUV *recognized.*
- *Selection of plastic material for high temperature and better chemical solution performance.*
- *Sealed types available.*
- *Simple relay magnetic circuit to meet low cost of mass production*

2. ***Ordering Information***

Tabel 7.2 *Ordering Information songle relay*

| **SRD** | **XX VDC** | **S** | **L** | **C** |
|---|---|---|---|---|
| *Model of relay* | *Nominal coil voltage* | *Structure* | *Coil* | *Contact form* |
| SRD | 03σ05σ06σ09σ12σ24σ48VDC | S:Sealed type | L:0.36W | A:1 form A |
| | | | | B:1 form B |
| | | F:Flux free type | D:0.45W | C:1 form C |

| **DIMENSION(unit:mm)** | **DRILLING(unit:mm)** | **WIRING DIAGRAM** |
|---|---|---|

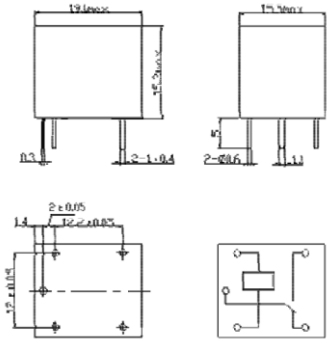

*Figure* 1 *Songle Relay Phisical Dimention*

**Lampiran 8 MG995 *High Speed Servo Datasheet***

***Specifications* :**

a. *Weight*: 55 g

b. *Dimension*: 40.7 x 19.7 x 42.9 mm *approx.*

c. *Stall torque*: 8.5 kgf·cm (4.8 V ), 10 kgf·cm (6 V)

d. *Rotation Angle*: 120deg. (+- 60 from center)

e. *Operating speed*: 0.2 s/60º (4.8 V), 0.16 s/60º (6 V)

f. *Operating voltage*: 4.8 V to 7.2 V

g. De*ad band width*: 5 µs

h. *Stable and shock proof  double ball bearing design*

i. *Metal Gears for longer life*

j. *Temperature range*: 0 ºC – 55 ºC

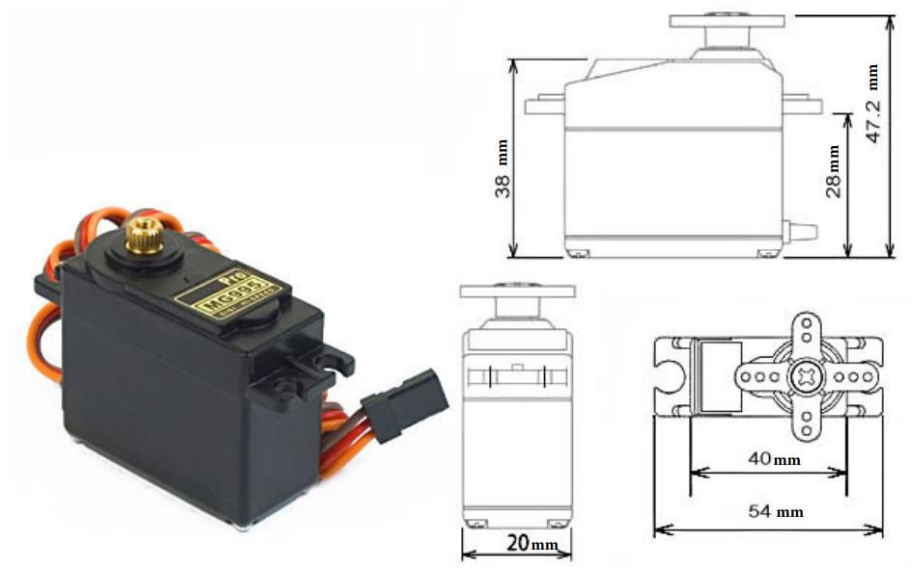


*Figure* 1 *High Toorque Phisical Dimention*

UPT. PERPUSTAKAAN PUSAT
UNIVERSITAS KATOLIK WIDYA MANDIRA KUPANG
Nomor Pokok Perpustakaan: 5371002D2020114
Jl. Prof Dr. Herman Johanes, Penfui Timur, Kupang Tengah, Kab. Kupang.
Website: https://perpustakaan.unwira.com/ e-mail: lib.unwira@gmail.com

# SURAT KETERANGAN HASIL CEK PLAGIASI

**Nomor: 67/WM.H16/SK.CP/2024**

Dengan ini menerangkan bahwa:

| | | |
|---|---|---|
| Nama | : | Yohanes Kefi |
| NIM | : | 23119096 |
| Fakultas/Prodi | : | Teknik/Ilmu Komputer |
| Dosen Pembimbing | : | 1. Patrisius Batarius, S.T., M.T.<br>2. Alfry Aristo Jansen Sinlae, S.Kom., M.Cs. |
| Judul Skripsi/Thesis | : | Penerapan Teknologi Wireless Sensor Network dan Internet Of Things Untuk Meningkatkan Produktivitas dan Keamanan Peternakan Ayam |

Tesis yang bersangkutan di atas telah melalui proses cek plagiasi menggunakan Turnitin dengan hasil kemiripan (*similarity*) sebesar **20 (Dua Puluh)%**.

Demikian surat keterangan ini dibuat agar dapat dipergunakan sebagaimana mestinya.

**Kupang, 01 Februari 2024**

**Kepala UPT Perpustakaan,**

**Silvester Suhendra, S.Ptk**