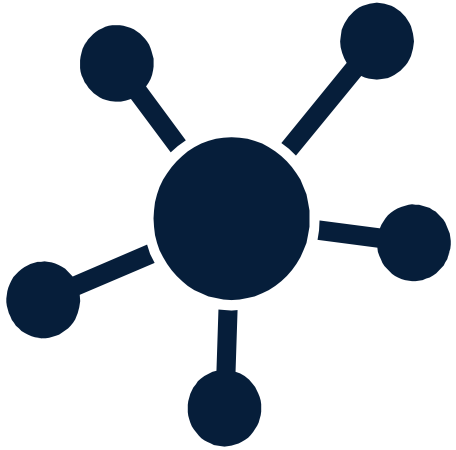

Internet of Things

Dalam Prespektif Sains, Teknik dan Teknologi Informasi

Isa albanna

Fisika, robotika, IoT dan Sistem Sensor

Pengajar J.Sistem Informasi – Itats & AlkhawarizLab

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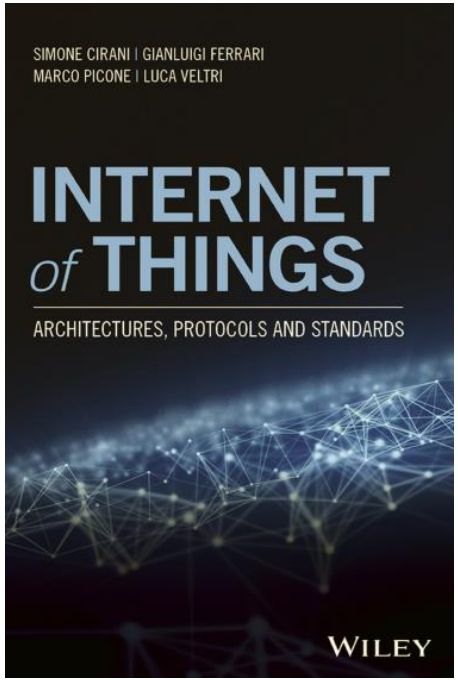
Referensi

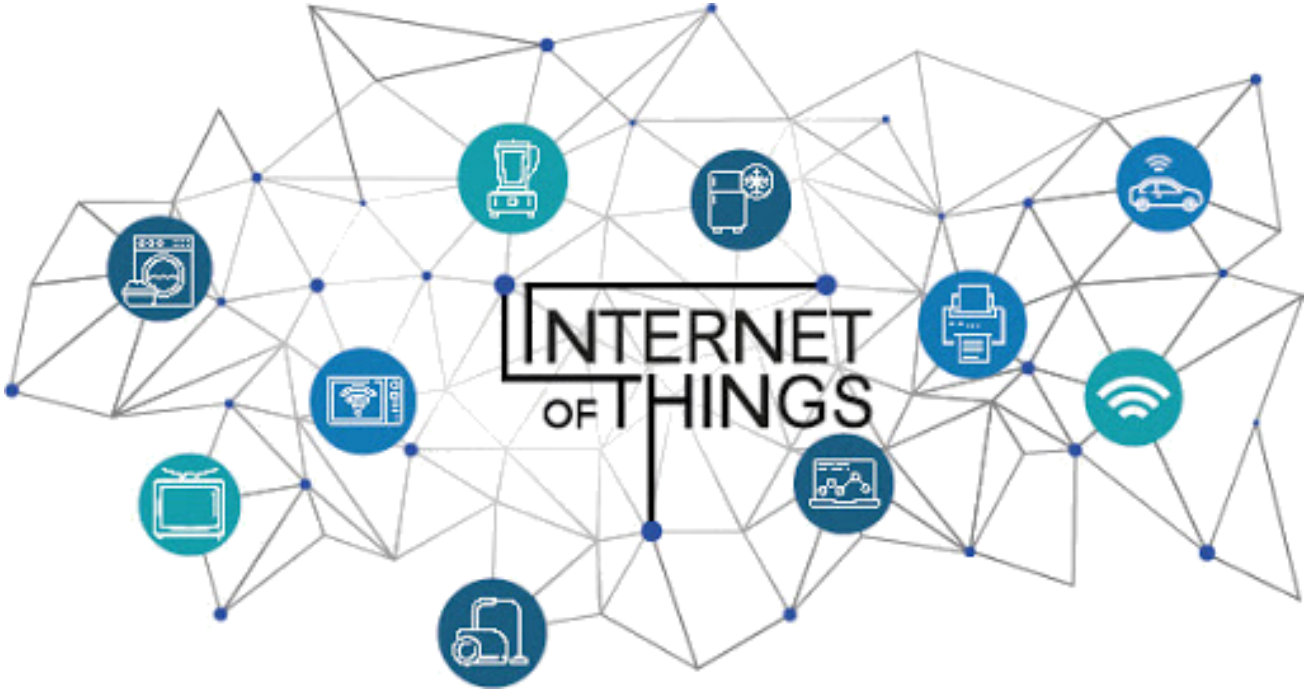

SIMONE CIRANI | GIANLUIGI FERRARI
MARCO PICONE | LUCA VELTRI
INTERNET of THINGS
ARCHITECTURES, PROTOCOLS AND STANDARDS
WILEY


Designing the Internet of things
Adrian McEwen & Hakim Cassimally

1. Definisi IoT

Dokumentasi dan perkembangan IoT

Ilustrasi Sistem IoT



Istilah Umum*

THE "INTERNET" OF "THINGS"

Internet : komunikasi elektronik yang menghubungkan jaringan komputer dan fasilitas komputer yang terorganisasi di seluruh dunia

Things : Objek atau Benda

** Improvisasi makna*

Racikan Internet Of Things

Objek +

Sensor, Komputer, Aktuator

+

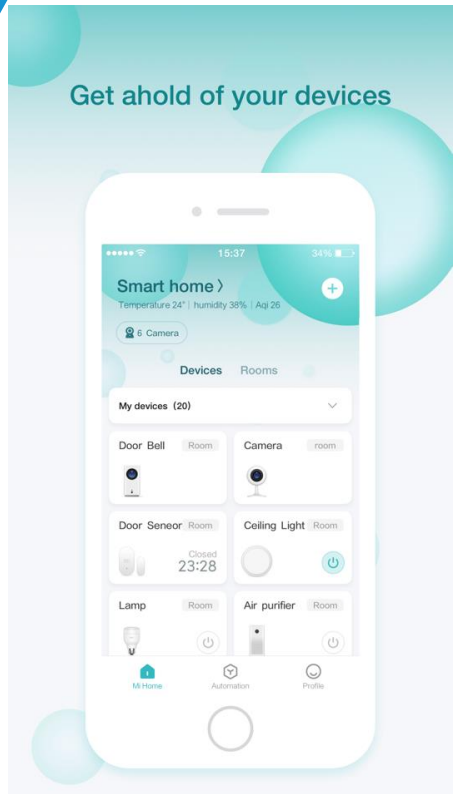
Data, Jaringan Internet

Perangkat dan Data

85% Konsumsi Data Internet

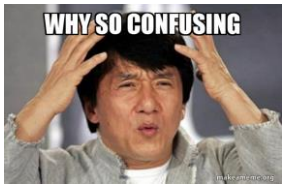
Internet service providers

Target Pengguna IoT

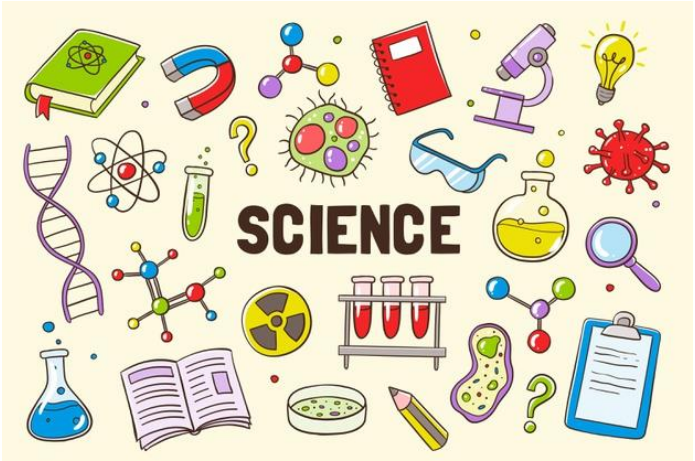


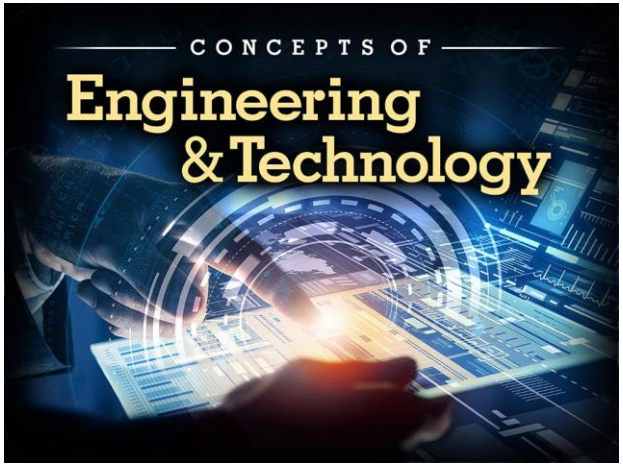
amazon alexa

Bidang Keilmuan IoT

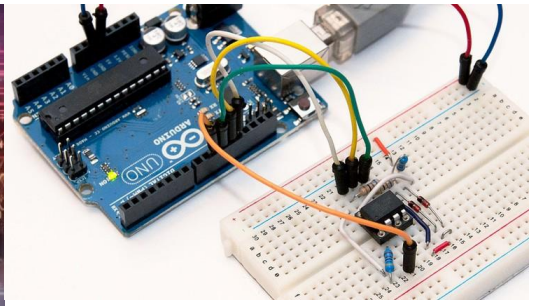


Jurusan apa yang mempelajari atau berkontribusi pada IoT?





Kebutuhan Kajian IoT



2. Arsitektut dan Instrumentasi Pendukung IoT

Rekayasa kebutuhan Teknologi Informasi

“

Sensor dan Aktuator

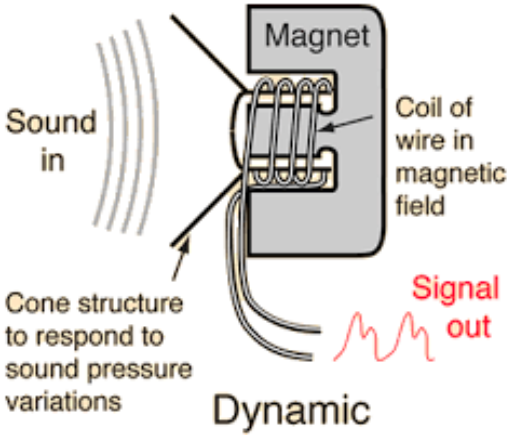
Embedded System

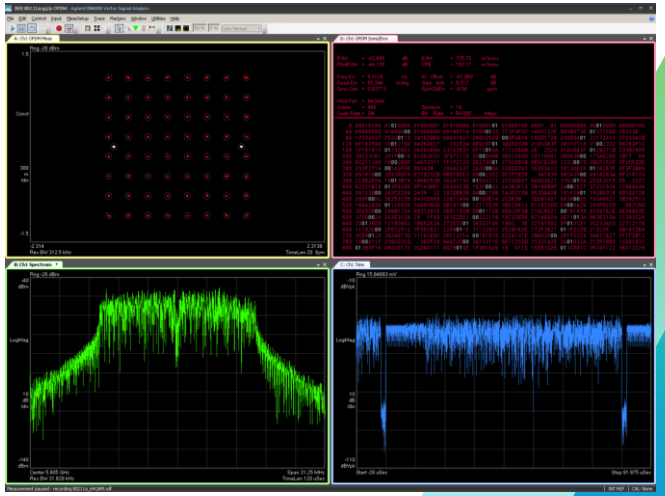
Jaringan Internet

”

Sensor

Sensor : Perangkat yang mengubah nilai parameter fisika menjadi parameter listrik





Aktuator

Aktuator : Alat untuk pengeluaran atau alat yang mengubah sinyal listrik menjadi parameter fisika

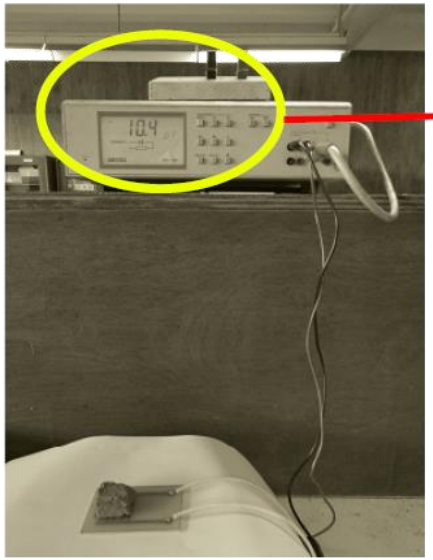
Implementasi Sensor dan Aktuator

KARAKTERISTIK AKUISISI DATA SENSOR *INTERDIGITAL CAPACITOR* UNTUK PENGUKURAN KADAR AIR PADA BATU BATA BERBASIS *NON-DESTRUCTIVE TESTING*

Isa Albanna
Sistem Komputer-Institut Teknologi Adhi Tama Surabaya
Jl. Arief Rahman Hakim No.100 Surabaya
Email : isaalbanna@itats.ac.id

ABSTRACT

Interdigital sensor capacitor (IDC-S) is a sensor-based non-destructive testing (NDT), which is able to change the value of physical parameters into electrical quantity (capacitance). The design of the sensor IDC-S in i oduction. The general objective o implementation of the measureme nteraction of dielectric material a IDC-S will be able to change the del simulations IDC-S using softv d cover the electrodes. In the sim es. Process of testing conducted nent capacitance value to variati is done by standard instrument lue of about 8.2 pF - 45.5 pF (t capacitance values by utilizing a easured signal outputs obtained l the dynamic method is



Implementasi Sensor dan Aktuator

SISTEM SERVER CERDAS INTERNET OF THING (IoT) UNTUK PROTEKSI KEGAGALAN FUNGSI INSTRUMENTASI PADA KONSEP KENDARAAN HIBRID

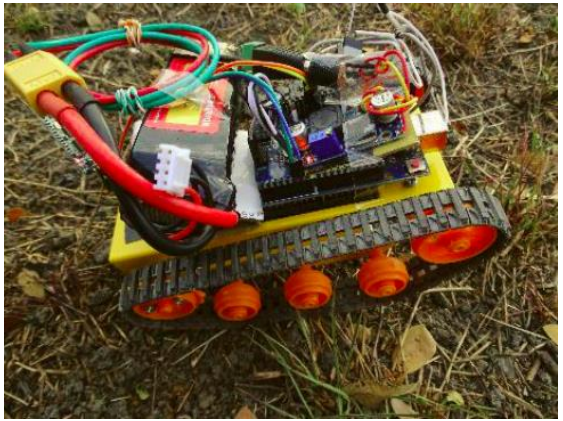
Isa Albanna[1], Amalia Anjani[2]

Jurusan Sistem Komputer-Institut Teknologi Adhi Tama Surabaya[1], Jurusan Sistem Informasi-Institut Teknologi Adhi Tama Surabaya[2]

e-mail: isaalbanna@itats.ac.id

ABSTRACT

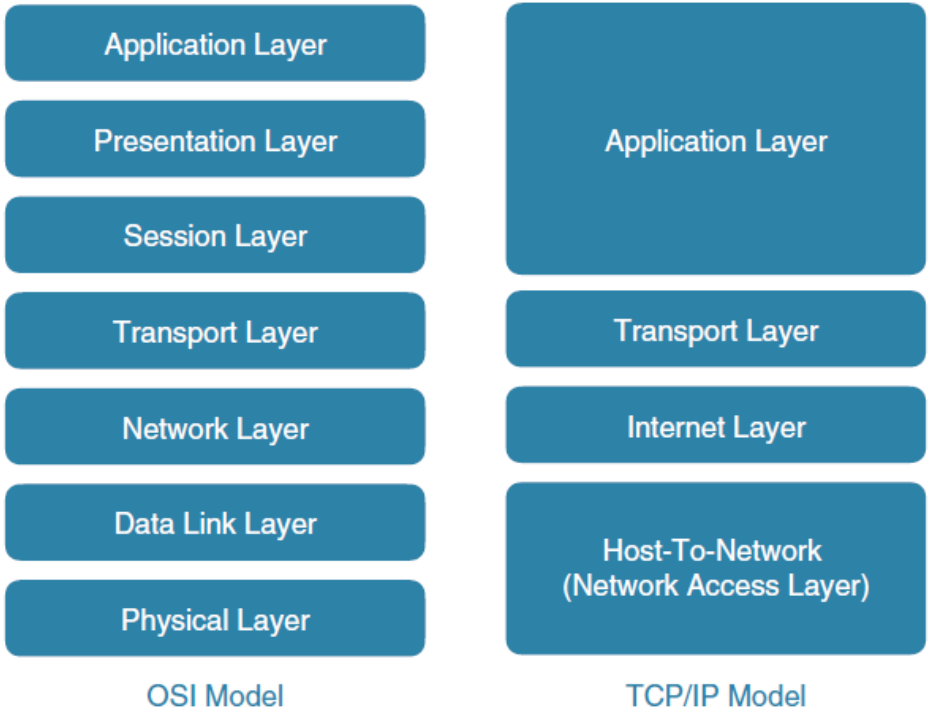
The concept of a hybrid vehicle seeks to create a vehicle system with little energy efficiency and be able to replace fuel oil. Batteries are used as energy storage for hybrid-electric vehicles. The role of sensors in hybrid-electric vehicle instrumentation monitoring is used to avoid malfunctioning of instrumentation. In this study focused on sensing physical parameters in Battery Management System (BMS). The design of sensing system consists of temperature sensor, voltage-current sensor, rotation speed sensor and IoT-based data transmission system. MQTT method is used for data transmission which will be processed by smart server. Smart Server is designed using Single Board Computer (SBC-Raspberry Pi). Sensor data is sent over TCP / IP network with packet data format. The server computer will record, analyze and notifications. System testing performed four stages of sensor calibration, data transmition delay and intelligence algorithm intelligent system. The test results of the error rate of the three sensors (temperature, current and



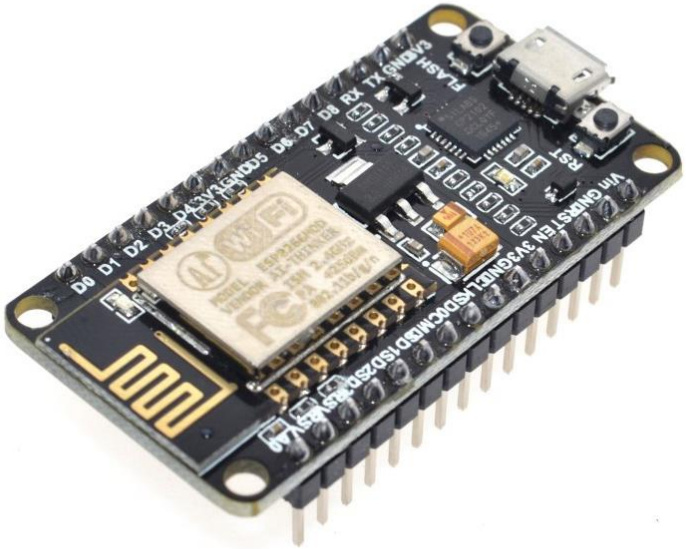
Teknologi Komunikasi Internet

Internet ???

Konsep Komunikasi



Perangkat IoT – Node MCU



Embedded System

PERANGKAT

Mini PC, Mikrokontroler, Mikroprosesor

+

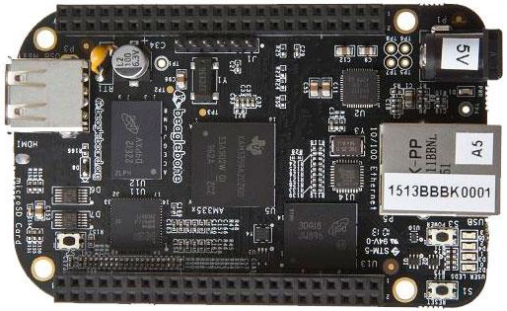
PEMROGRAMAN KOMPUTER

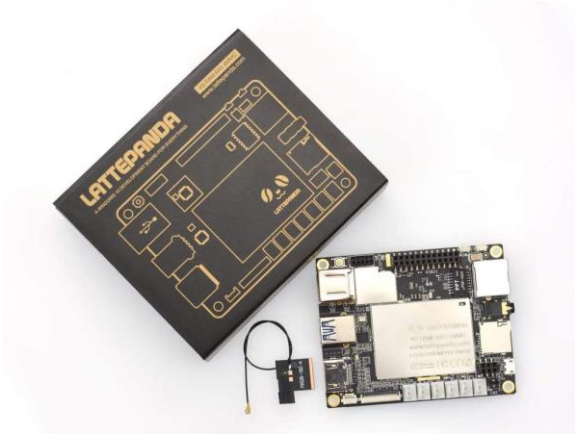
Perangkat Komputasi

1. Mini PC
2. Mikrokontroler
3. Mikroprosesor

Mini PC

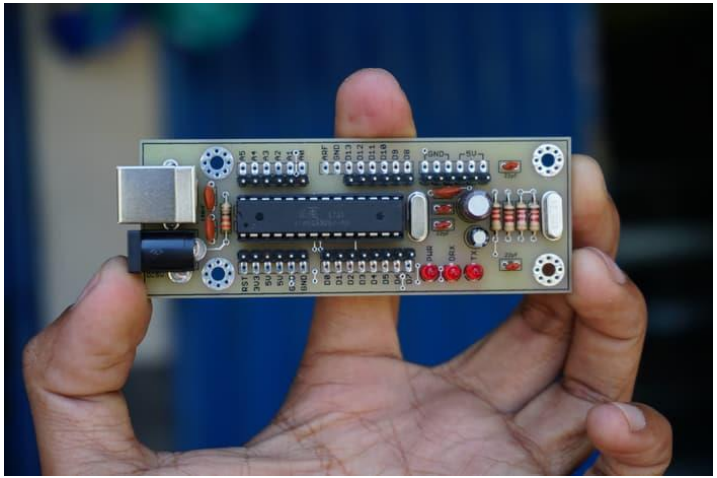
1. Raspberry Pi
2. beaglebone
3. Orange Pi
4. Lattepanda

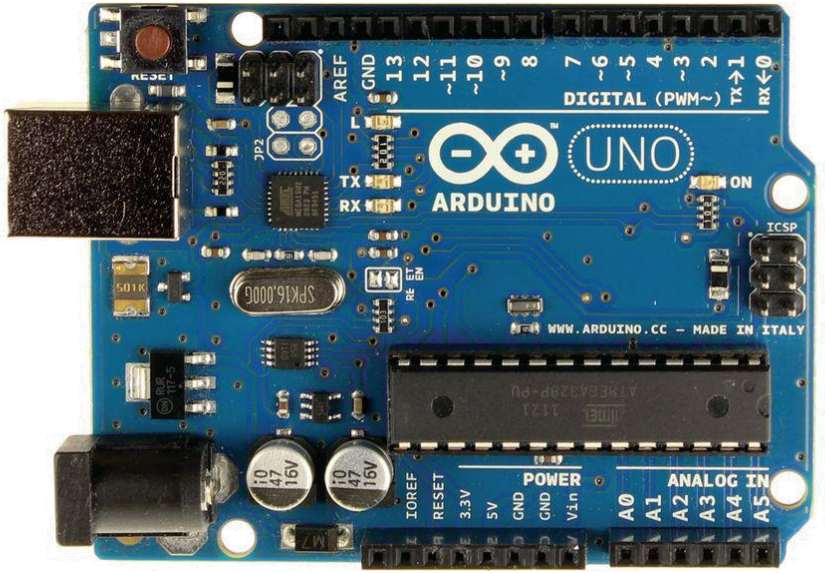




Mikrokontroler

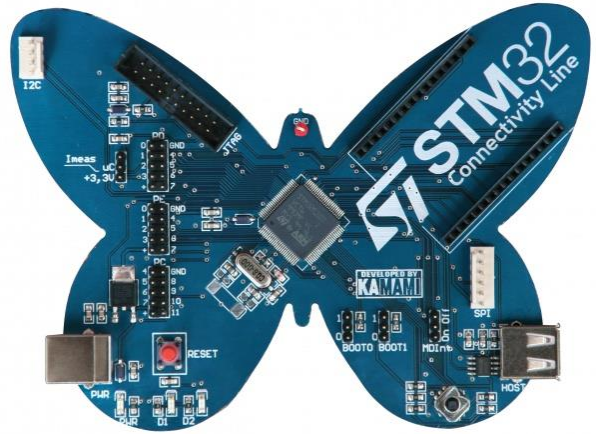
1. ATMEGA
2. Arduino
3. ARM-STM32

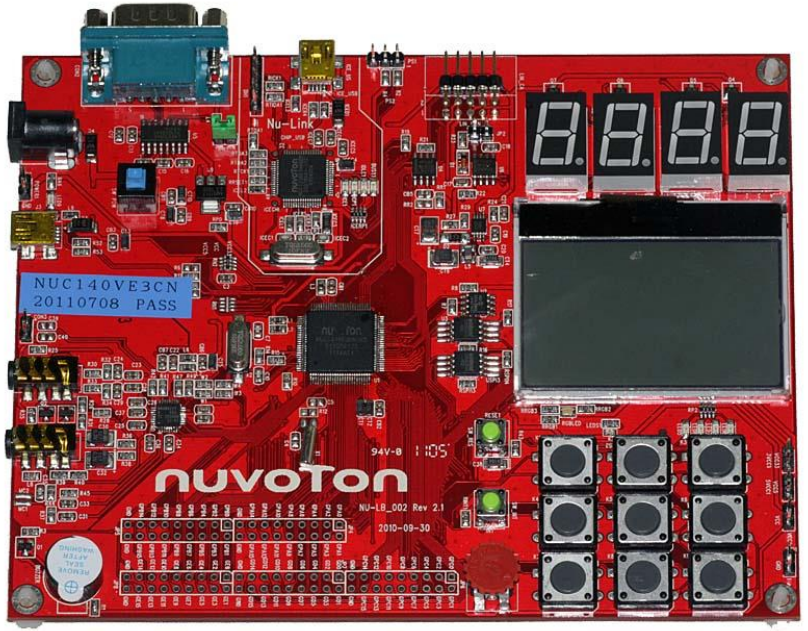




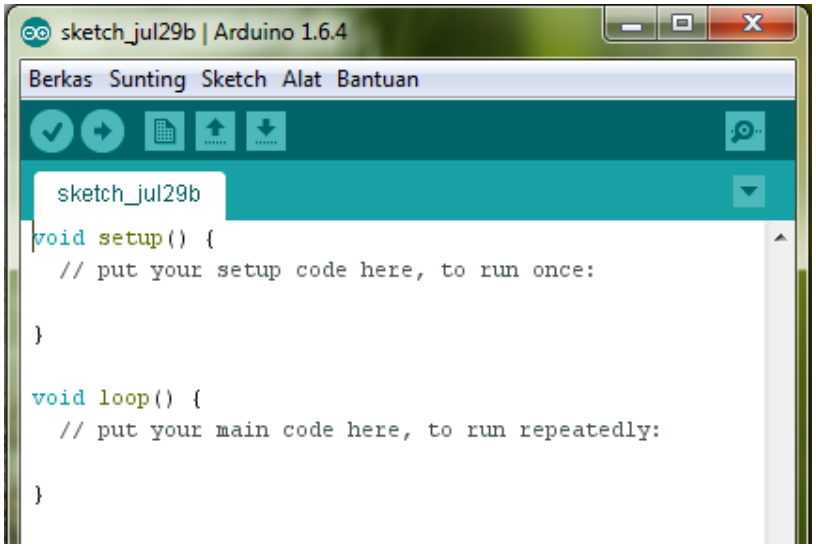
Mikroprosesor

1. Nuvuton Board
2. Butterfly STM-32





Pemrograman

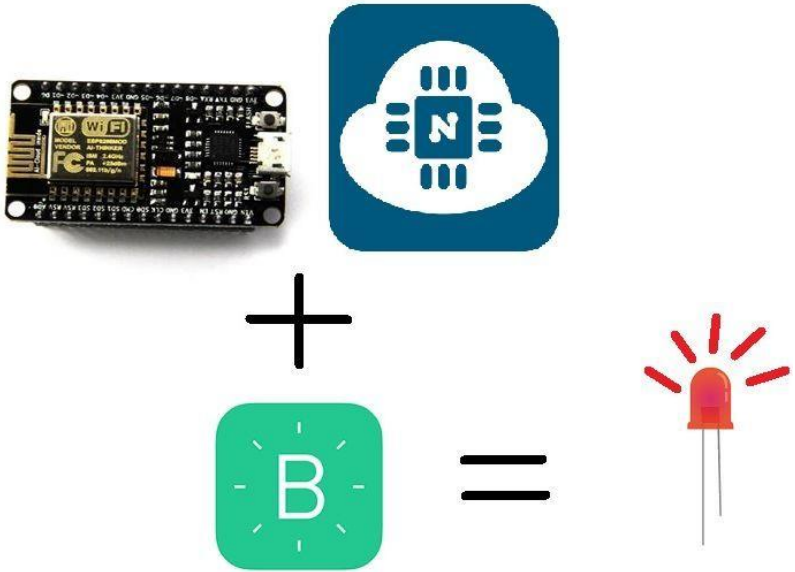


python

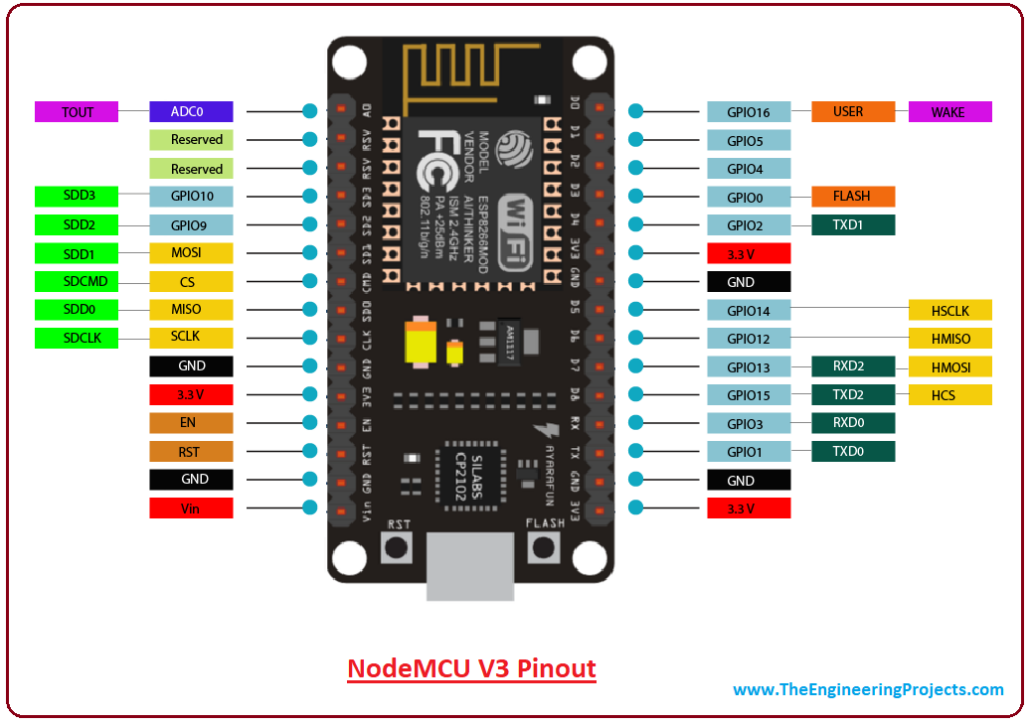
3. Implementasi IoT

Contoh mudah IoT

Project 1. Menyalakan LED via Internet dan BLYNK



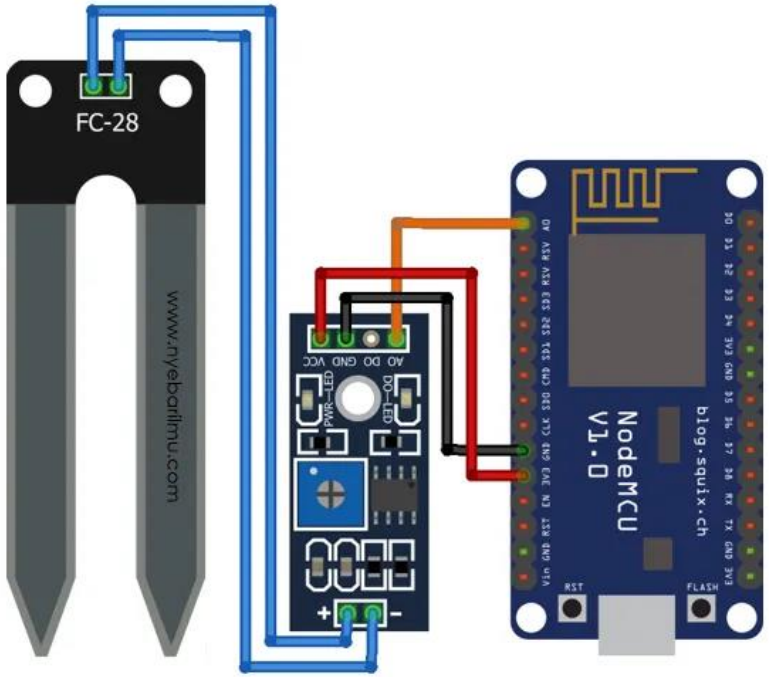
Project 1. Menyalakan LED via Internet dan BLYNK



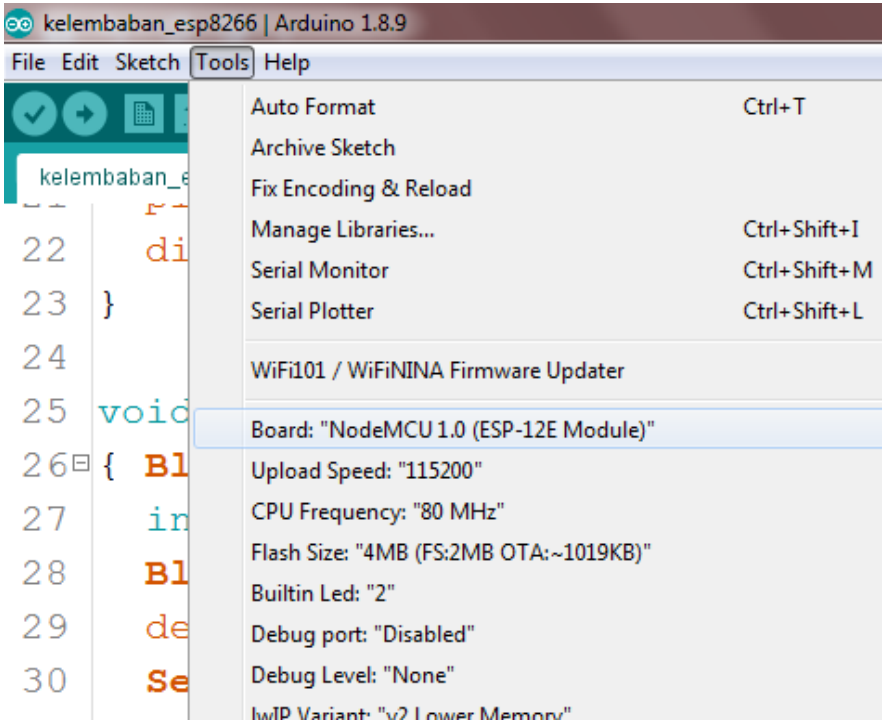
Project 1. Menyalakan LED via Internet dan BLYNK

```
#define BLYNK_PRINT Serial
#include <ESP8266WiFi.h>
#include <BlynkSimpleEsp8266.h>

char auth[] = "EcHwndAuAkKng79dvIF9d_Xr5ZuK7dfq";
char ssid[] = "mylab";
char pass[] = "surabaya1945";

void setup(void)
{
  Serial.begin(9600);
  Blynk.begin(auth, ssid, pass);
}

void loop(void)
{
Blynk.run();
}
```

Project 2. Membaca Data Sensor



Project 2. Membaca Data Sensor



Project 2. Membaca Data Sensor

```
#define BLYNK_PRINT Serial
#include <ESP8266WiFi.h>
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char auth[] = "EcHwndAuAkKng79dvIF9d_Xr5ZuK7dfq";
char ssid[] = "mylab";
char pass[] = "surabaya1945";
int tombol;
BLYNK_WRITE(V1) // button
{
  tombol = param.asInt();
  Serial.println(tombol);
}

void setup(void)
{
  Serial.begin(9600);
  Blynk.begin(auth, ssid, pass);
  pinMode(14, OUTPUT);
  digitalWrite(14, LOW);
}
```

Project 2. Membaca Data Sensor

```
22
23  void loop(void)
24  { Blynk.run();
25    int kelembaban = analogRead(0);
26    Blynk.virtualWrite(V0, kelembaban);
27    delay(1000);
28    Serial.println(kelembaban);
29    if (tombol == 1) {
30      digitalWrite(14, HIGH);
31    } else {
32      digitalWrite(14, LOW);
33    }
34  }
```

Terima Kasih

“BACALAH ATAS KESEMPURNAAN - NYA”

fatwa kesempurnaan

Sistem organ & kecerdasan ilmiah

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AL-KHAWARIZLAB

embedded systems consultant

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Phone : 085815683477