

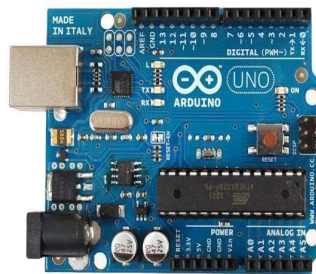
## CHAPTER 2

### LITERATURE REVIEW

#### 2.1 Monitoring

Monitoring is monitoring which can be described as awareness of what one wants to know, a high level of monitoring is done in order to be able to make measurements through time that show movement towards a goal or away from it. Monitoring will provide information about the status and trends that measurements and evaluations that are completed are repeated from time to time, monitoring is generally carried out for specific purposes, to examine processes and objects or to evaluate conditions or progress towards the objectives of management results for the effects of actions of several types, among others actions to maintain ongoing management (Amrullah, Rifqi Syahrizal, 2017)[1]

#### 2.2 Arduino Uno



Picture 1 Arduino Uno

#### 2.3 Website

Website is a web defined as a collection of pages that display information on text data, image data, animation data, sound, video and a combination of all of them, both static and dynamic, which form a series of interrelated buildings where each is connected to a network of pages. (HENDI, 2020)[3]

#### 2.4 Internet Of Things

The Internet of Things, or IoT for short, is a concept that aims to increase the advantages of constantly connected internet connectivity by allowing us to connect machines, equipment, and other physical objects with a network of sensors and actuators to collect data and manage their own performance,

allowing machines to cooperate and even act on new information obtained independently. The Internet of Things, or IoT, is a concept in which all physical items may interact with one another as a part of a seamless, integrated system utilizing the internet as a link. As an illustration, CCTV mounted along a road is connected to the internet and assembled in a control center that may be tens of kilometers away.

## 2.5 Sensors Ultrasonik

Sensors that convert physical quantities (sound) into electrical quantities and vice versa are known as ultrasonic sensors. The operation of this sensor is based on the idea of reflection of sound waves, which allows it to be used to determine the length (distance) of an object with a certain frequency. (Puspasari, 2019 ) [4]

### HC-SR04 specifications and dimensions

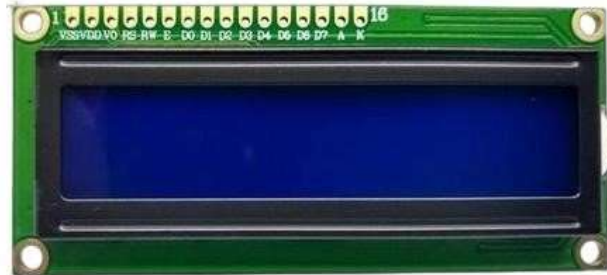
- Working Voltage: DC 5V
- Working Current: 15mA
- Working Frequency: 40Hz
- Max Range: 4m
- Min Range: 2cm
- Measuring Angle: 15 degree
- Trigger Input Signal: 10 $\mu$ S TTL pulse
- Echo Output Signal Input TTL lever signal and the range in proportion
- Dimensions: 45 \* 20 \* 15mm



Picture 2 Sensor Ultrasonik

## 2.6 Liquid Crystal Display

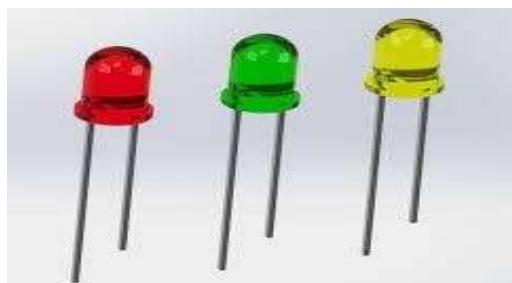
Electronic display is an electronic component that functions to display numbers, letters or other symbols. LCD (Liquid Crystal Display) is one of the commonly used electronic displays. LCD is made with CMOS logic which works by not producing light but reflecting the light around it towards the front-lit or transmitting light from the backlit. (Amrullah, Rifqi Syahrizal, 2017)



Picture 3 LCD 16x2

## 2.7 Light Emitting Diode

The Light Emitting Diode, sometimes known as an LED, is a kind of semiconductor that produces light more efficiently than other semiconductors. Solid-state electronics give it more longevity. Due to its tiny size, simple installation process, and low power consumption, LEDs have historically been used extensively in electrical equipment. The comparatively long lifespan of LED more than 30,000 hours is one of its benefits. The disadvantage is that they are more expensive per lumen (unit of light) than incandescent TL and SL type lamps, which are also more prone to damage when used in environments with high ambient temperatures, such as those found in industry. (Electrical Engineering, 2014)[5]



Picture 4 Lamp LED

## 2.8 Buzzer

The buzzer is an electronic component module of the transducer category that produces sound waves from electrical impulses. Typically, the buzzer serves as an alarm signal. usually used as a condition indicator in research initiatives. (Ramady, 2020)[6]



Picture 5 Buzzer

### 2.8.1 Collecting Data

The data collection method is an important matter in research, because this method is a strategy to obtain the necessary data. Research success is largely dependent on the data collection techniques used. To obtain reliable materials, information, facts and information. In order to obtain data as intended, the research used real techniques, procedures, tools and activities. The data collection process can be done through interviews, observation and documentation

### 2.8.2 Design Hardware

Hardware is a computer device consisting of an arrangement of electronic components in physical form (in the form of objects). Hardware or hardware is a tool or object that can be seen, touched, held and has a certain function. Equipment that is physically visible and can be touched or held.

### 2.8.3 Implementation Software

Implementation refers to actions to achieve the goals set in a decision. This action seeks to convert these decisions into operational patterns and seeks to achieve big or small changes as previously decided. Implementation is essentially an effort to understand what should happen after the program is implemented

## 2.8.4 Monitoring Sistem Application Blynk IoT

The monitoring system is used to monitor, supervise, and control whether or not a network device runs. The importance of monitoring is routinely monitoring problematic devices that have the potential to disrupt the internet network

## 2.8.5 Evaluation System

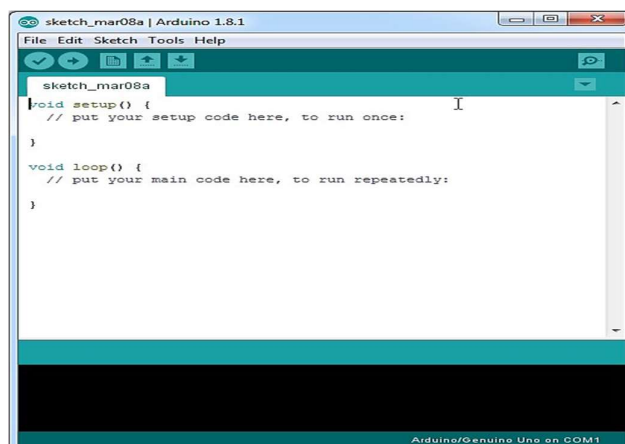
Evaluation of information systems is a process to explore and find out, about the extent to which a information system implementation activities, both from the point of view of user perceptions, the organization, and in terms of information system technology

## 2.8.6 Tool Use

In this section it is explained that the tool is ready to use after going through all the stages.

## 2.8 Arduino IDE

The software system in question is the Arduino IDE which is software for writing Arduino Uno program listings, so that the Arduino Uno system that has been made can work as desired. In designing the Arduino Uno software, it uses the C programming language, where the program listings can be compiled and uploaded directly to Arduino Uno using the Arduino IDE, (Aryani, 2019)[8]



Picture 6 Arduino Uno

## 2.9 Blynk IOT

Blynk is an iOS and Android OS application that is used for control and monitor IoT projects based on Arduino, NodeMCU, Raspberry Pi and similar boards via the Internet. This Blynk application is known as the most user-friendly IoT platform because of its easy use. Making the user interface in Blynk is very easy, just by dropping and dragging the widgets available in the Blynk application so that you can design the user interface quickly. Widgets available on Blynk include Button, Value Display, History Graph, Twitter, and many more. The Blynk application must use the internet, so it must first connect the microcontroller board to the internet network so that it can connect to the Blynk application.



Picture 7 Blynk

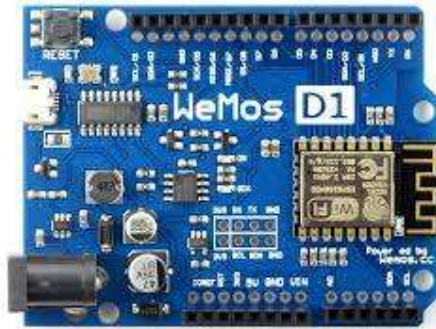
## 2.10 Wemos D1 R1

Wemos d1 mini adalah sebuah board mikrokontroler dengan tambahan fungsi untuk bisa dihubungkan ke jaringan Wifi. Wemos jenis ini merupakan versi paling rendah dimana versi tertinggi dari board mikrokontroler ini adalah Wemos D1 R2. Another advantage of the Wemos D1 compared to the Arduino UNO is due to the use of the ESP8266 IC which has a 32-bit processor, compared to the UNO which has an 8-bit AVR core.

**Following are the full specifications of the Wemos D1:**

- RISC 32 bit CPU running at 80MHz
- 64Kb Instruction RAM and 96Kb Data RAM
- 4MB flash memory
- Wi-Fi
- There are 16 digital input and output (GPIO) pins
- Peripheral connectivity I2C, SPI and I2S

- 1 Analog Digital Converter (ADC) with a maximum input of 3.3vDC
- Compatible with Arduino UNO shields on the market
- Port Power Supply with a voltage of 9v - 24vDC, such as Arduino UNO



Picture 8 Wemos R1 D1

## 2.11 Previous Research

1	SMART PARKING BERBASIS ARDUINO	Galih Raditya Pradana, Universitas Negeri Yogyakarta	sistem Smart Parking Berdasarkan Arduino Uno dapat merubah sistem parkir yang masih konvensional menjadi sistem parkir yang otomatis dan informatif, yang fungsinya untuk memantau kondisi tempat	Untuk meneliti tentang sistem parkir ini dibedakan dengan pembacaan jarak dengan sensor ultrasonik ini melalui
2	SISTEM PARKIR CERDAS SEDERHANA BERBASIS ARDUINO ATMEGA 2560 Rev	Alimuddin, ST., MT Politeknik Katolik Saint Paul Sorong 2018	Mobil akan dipisahkan sesuai ketinggian yang diatur pada program dan juga servo yang akan terbuka setelah melewati gerbang awal tergantung dari deteksi tinggi mobil tersebut.	Pada penelitian saya akan dibedakan beberapa type kendaraan berdasarkan pendataan yang dilakukan dengan mendata langsung kendaraan yang berada di Parkiran Gedung E



3	PERANCANGAN SISTEM PENDETEKSI JARAK AMAN PARKIR BERBASIS MIKROKONTROLLER ARDUINO	Mohammad Fajar, Anthony, Abdul Munir	Mobil akan dipisahkan sesuai ketinggian yang diatur pada program dan juga servo yang akan terbuka setelah melewati gerbang awal tergantung dari deteksi tinggi mobil tersebut[10]	Pada penelitian yang saya lakukan ini telah ada pembeda pada saat ingin memarkirkan kendaraan
4	SISTEM MONITORING PARKIR MOBIL BERBASIS MIKROKONTROLER ARDUINO UNO	Mustaziri, YulianMirza  PoliteknikNege ri  Sriwijaya  Palembang  2020	Keadaan motor servo akan terbuka pada 65 derajat Dan 0 derajat memiliki rata rata besar tegangan 0,12 Volt dengan presentase status output 100% sesuai dengan output yang diharapkan	Pada penelitian yang saya lakukan bahwa pada sistem parkiran berfokus
5	KENYAMANAN DAN KEAMANAN PADA SISTEM PARKIR BERBASIS SENSOR	Yudi Herdiana,Univ ersitas Bale Bandung,2019	Tidak ada sistem yang sesuai dengan berbagai jenis arsitektur dan struktur parkir. Ada sistem parkir yang hanya berfungsi untuk parkir mobil linier dan tidak memiliki dampak yang sama	Pada penelitian yang saya lakukan untuk mendata diameter ukuran kendaraan yang berada

Table 1 Previous Research