POLITEKNIK BANTING SELANGOR

AUTOMATIC CAR GATE RFID

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Laporan ini dikemukan kepada Jabatan Kejuruteraan Mekanikal sebagai memenuhi sebahagian syarat penganugerahan Diploma Kejuruteraan Mekanikal

JABATAN KEJURUTERAAN MEKANIKAL

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APPRECIATION

I want to start by saying that I am grateful to Allah (SWT) for giving me the chance to perform this responsibility. Even though I was late, I was still able to finish the chores that had been given to me, so I was relieved. I've done all possible to satisfy my supervisor's standards, at the very least.

I would want to thank everyone for their advice and lessons, especially my project manager, Mr. Mohammad Hazwan Bin Norli, who motivated me to finish this job. Despite having a lot of other things on my plate, I managed to finish this one. Despite having a lot of other tasks to complete, I was still able to complete this one. I therefore did the best I could to complete this task, and now all I can do is hope that she will be satisfied with the outcome.

Additionally, I want to thank all of our friends who are always willing to help me with this task. They helped me regularly with word building, vocabulary growth, concept generation, and other things relating to this endeavour. Without their help, I'm not sure whether I'll be able to complete this task. They must therefore be acknowledged.

Aside from that, I would like to thank our parents for their support to do better in my academics. Their optimism gave me motivation and support to finish this project. They both always impressed me in terms of task needs. I give them a lot of credit for their dedication to me and my studies because no one else can help me to achieve my best.

ABSTRACT

This proposal was inspired by an observation of the Polytechnic Banting gate system, which requires time and labour to organise individuals coming in and going out. This initiative aims to make it simpler for security personnel and other users to enter and exit without having to wait a long time. Additionally, it contributes to higher security levels at Polytechnic Banting and other locations that employ this product. Additionally, this project has produced a number of scopes of research, including an RFID system that is simple to use and aids in organizing people's entry and exit. All of the data will be kept and preserved in the database. With all of this, several of the issues that can occur when using the current gate barrier will be resolved. One aspect of it is that the security will need to manually open the gate by pressing the switch and will need to approve the simultaneous entry and leave of the persons. While employing flowcharts as a guide for planning and production testers, methodical study is utilized to plan the project production process for the component formation process.

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CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION

Boom barriers, often referred to as boom gates, are bars or poles that may be turned such that the boom can prevent vehicles or people from passing through a regulated point. Typically, the tip of a boom gate rises vertically in an arc to a point almost vertical. Boom gates are frequently counterweighted, making it simple to tip the pole. Boom gates are frequently used end-to-end or properly offset to restrict traffic in both directions. Some boom gates additionally contain a second arm that, when lowered to improve approach vision, hangs 300 to 400 mm below the top arm. When the barrier is raised, the second arm hangs on links and lies flat with the main boom.

1.2 PROJECT BACKGROUND

The use of boom barriers and gate barriers is commonplace worldwide. Residential and industrial environments are two examples of where boom barriers or gate barriers are used. A gate barrier with an RFID system that can also organise people's data was developed in Malaysia to keep up with technology advancements. As a result, in this project, the gate barrier will operate utilising a well-known RFID system rather than a manually operated gate barrier. The project also aims to increase security, shorten the time it takes to open the gate, and arrange whenever people will entered and exited.

1.3 STATEMENT OF PROBLEM

This initiative is intended to address issues that frequently affect security guards and other people. Users who seek a machine that can solve problems, such shortening entry and worker times, will find it useful and effective. Additionally, a switch is used to operate the current gate barrier. It will take time for other people to enter because of this. Additionally, the current gate barrier only serves to prevent cars from entering, but my concept aims to increase security by limiting entry to those with specifically designed RFID cards or stickers.

1.4 PROJECT OBJECTIVES

The objectives of this project are:

- To decrease the manpower to open the gate
- Decreased time taken to wait the gate to open
- Help to organise people go in or out
- Increase the security

1.5 PROJECT SCOPE

Utilising the created system to raise the level of security in both residential and industrial settings. The lifespan of the gate is around 10 to 15 years; however, it is a different situation for an RFID card or stickers. The user's care habits determine how long RFID cards or stickers will last. The project's cost is reasonable and acceptable, but there will be an additional fee for the RFID stickers or cards.

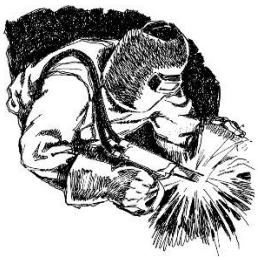
CHAPTER 2

LITERATURE REVIEW

A literature review is an overview of the previously published works on a specific topic. The term can refer to a full scholarly paper or a section of a scholarly work such as a book, or an article. Either way, a literature review is supposed to provide the researcher/author and the audiences with a general image of the existing knowledge on the topic under question. A good literature review can ensure that a proper research question has been asked and a proper theoretical framework and/or research methodology have been chosen. To be precise, a literature review serves to situate the current study within the body of the relevant literature and to provide context for the reader. In such case, the review usually precedes the methodology and results sections of the work.

A literature review can be a type of review article. In this sense, a literature review is a scholarly paper that presents the current knowledge including substantive findings as well as theoretical and methodological contributions to a particular topic. Literature reviews are secondary sources and do not report new or original experimental work. Most often associated with academic-oriented literature, such reviews are found in academic journals and are not to be confused with book reviews, which may also appear in the same publication. Literature reviews are a basis for research in nearly every academic field

2.1 HISTORY OF WELDING



The invention and technical production of welding is one of the most critical steps in metal fabrication and development as a modern society. The origins of welding date back thousands of years, with significant developments made across many continents. Welding is the original technique for humans to fuse metals together, leading to the production of utensils, jewelry, weapons, transportation, and more.

The history of fusing metals through welding goes back as far as 3000 B.C. when humans first started working with bronze. The oldest known examples of welding are small golden boxes that date back to the Bronze age over 2,000 years ago. Archaeologists have found jewelry, dining utensils, and weapons from this time

period. In 3000 B.C., Egyptians used charcoal to pressure-weld swords, and in 1500 B.C., iron smelting became more common.

Throughout the Middle East, tools and weapons dating back to the Iron Age have been found, made in approximately 1000 B.C. Welders have fused metals like copper, bronze, silver, gold, and iron over thousands of years. Over time, metalworking then progressed to welding steel. During the Sui Dynasty, Chinese metalworkers discovered how to turn iron into steel in 589 A.D. At about the same time, Japanese metalworkers developed Samurai swords through welding and forging steel.

2.1.1 WELDING IN THE MIDDLE AGES

During the Middle Ages, blacksmithing was developed and iron became an available material for creating welded metal objects. Specifically, the middle ages brought advances in forge welding, which is still practiced by modern blacksmiths to forge swords and knives.

In 1540, Italian metallurgist Vannoccio Biringuccio published De la pirotechnia, the first printed book on metallurgy, which includes descriptions of smelting and forging iron. Blacksmithing and forge welding continued to grow during the Renaissance.

Blacksmiths were central to the middle ages, often setting up their blacksmith shop, also known as a smithy, in the center of their village. Blacksmiths forge-welded weapons, and also made nails, furniture, locks, horseshoes, and armor. With this practical skill, blacksmiths became essential to any village, providing tools for protection, transportation, home goods, and more.

2.1.2 MODERN DAY WELDING

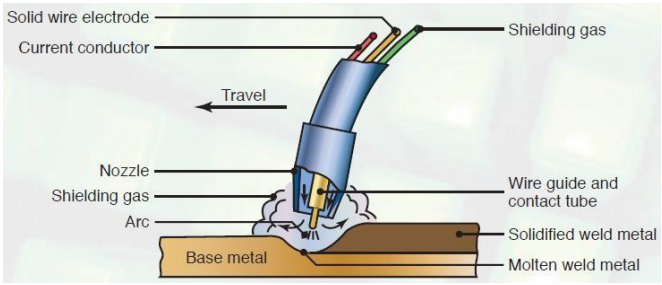
Over thousands of years of technical and practical developments, welding has advanced significantly to become more accurate, fast, and effective. There are over 90 welding processes in existence, and these methods are constantly being developed with new research in the nuclear, space, transportation, and shipbuilding industries.

Modern welding techniques have evolved to offer better performance, rooted in safety and sustainably built products. Contemporary inspection techniques have improved defects or imperfections, setting a standard for safety and craftsmanship.

If you are interested in working in welding as a career, there are a number of certifications and licenses offered that employers may require. American Welding Society (AWS) sets the modern-day standard for the American welding industry, AWS offers a certification, which tests welders to perform certain work based on their practical experience, qualifications, and the ability to weld specific tests.

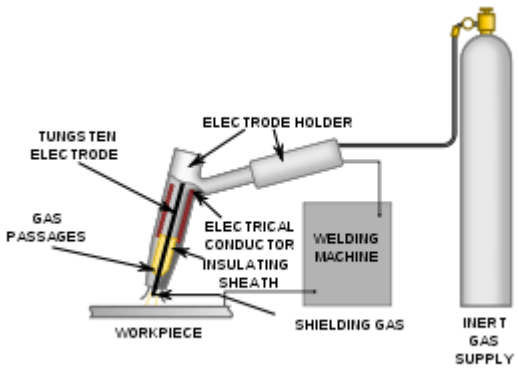
2.2 TYPES OF WELDING

MIG – GAS METAL ARC WELDING (GMAW)



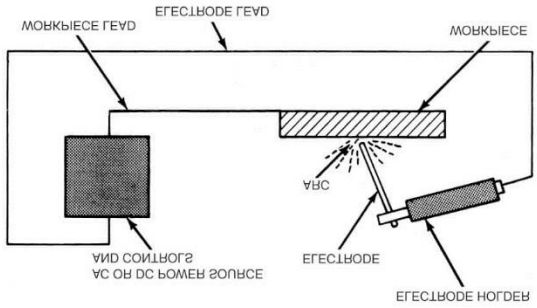
MIG welding is used in the auto industry for repairing vehicle exhausts and is also used in creating homes and buildings. It is one of the most common types of welding. This is a type of arc welding that uses a continuous wire called an electrode. It also use a shielding gas that travels through the welding gun and protects against contamination.

TIG - GAS TUNGSTEN ARC WELDING (GTAW)



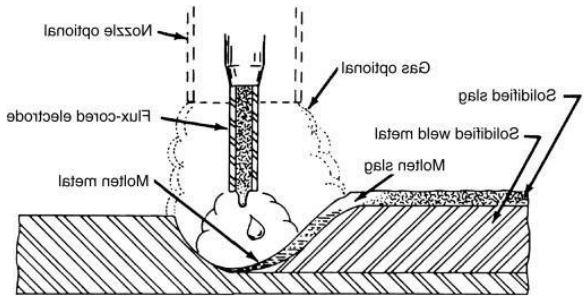
TIG welding also uses electric arc like MIG. When working with TIG welding, you use an electrode made of tungsten. Tungsten is one of the toughest metal materials. It will not dissolve or burn off. Welding can be done through a process known as fusion which is using or not using a filler metal. TIG also uses an external gas supply, such as argon or helium. Aerospace and auto also use TIG welding as well as other industrial markets. This is also a great type of welding for Iowa as it can be very useful for farmers to use welding wagon frames, fenders and other important equipment.

STICK – SHIELDED METAL ARC WELDING (SMAW)



Stick welding is used in construction, maintenance and repair, underwater pipelines, and industrial fabrication. For this type of welding, it use a shielded metal art welding or more commonly known as Stick welding. It also use a consumable and protected electrode, or stick. The stick softens and combines metals by heating with an arc between a covered metal electrode and the base metal workpiece. As the stick melts, its protective cover also melts and shields the weld area from oxygen and other gases that may be in the air.

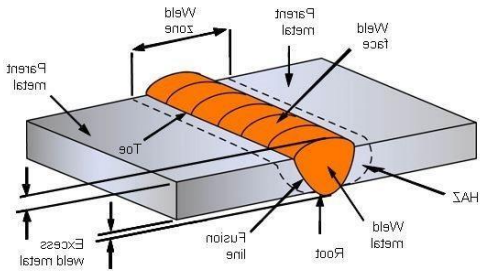
FLUX-CORED – FLUX-CORED ARC WELDING (FCAW)



Flux-cored arc welding is similar to MIG welding because both use continuous wire and power supplies. It combine a continuous electrode with a base metal. The electrode is a hollow tube filled with flux that is fed through the weld gun and into the weld pool. When welding outdoors, a flux shield offers protection against weather elements. This type of welding is used for welding thicker metals and is used in machining industries.

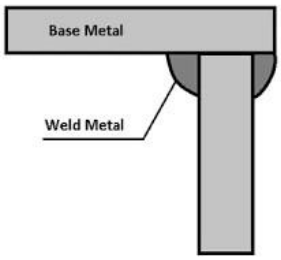
2.3 TYPES OF JOINT

BUTT JOINT



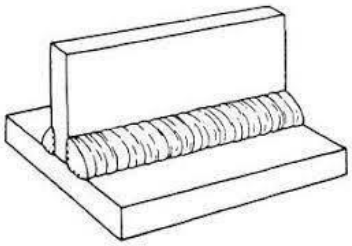
Butt welds are made in a variety of ways, and each one serves a different purpose. Varying factors include the shape of the groove, layering and width of the gap.

CORNER JOINT



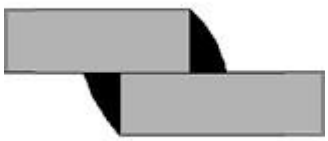
Corner joints have similarities to tee welding joints. However, the difference is the location of where the metal is positioned. In the tee joint, it's placed in the middle, whereas corner joints meet in the 'corner' in either an open or closed manner forming an 'L' shape. These types of joints are among some of the most common in the sheet metal industry, such as in the construction of frames, boxes and other applications.

TEE JOINT



Tee welding joints are formed when two pieces intersect at a 90° angle. This results in the edges coming together in the center of a plate or component in a ‘T’ shape. Tee joints are considered to be a type of fillet weld, and they can also be formed when a tube or pipe is welded onto a base plate.

LAP JOINT



Lap welding joints are essentially a modified version of the butt joint. They are formed when two pieces of metal are placed in an overlapping pattern on top of each other. They are most commonly used to joint two pieces with differing thicknesses together.

EDGE JOINT

In an edge joint, the metal surfaces are placed together so that the edges are even. One or both plates may be formed by bending them at an angle.

CHAPTER 3
METHODOLOGY

3.1 INTRODUCTION

Methodology is the study of research methods, or, more formally, a contextual framework for research, a coherent and logical scheme based on views, beliefs, and values, that guides the choices researchers make. It comprises the theoretical analysis of the body of methods and principles associated with a branch of knowledge such that the methodologies employed from differing disciplines vary depending on their historical development. This creates a continuum of methodologies that stretch across competing understandings of how knowledge and reality are best understood. This situates methodologies within overarching philosophies and approaches.

In this chapter, there will be a lot of information about the process and journey throughout the making of our final project. There will be flow chart showing the process of us making the whole project of us making the whole project. This flow chart will explain the process we took. Next, is the Gant chart, will show the actual and our planning through all the 14 week of our final year project journey. However, in this chapter also will show 3 method we research to carry our final year project.

3.2 WELDING

For this project we used tig welding. it is because tig welding is more efficient than other types of welding because the material we use is not thick. If we use other types of welding for example MIG (GMAW) it will cause the material we use to be hollow or untidy. With the skills I have, I am confident that I can weld well to make this project a success.

3.3 WELDING JOINT

For this project we chose butt joint and corner joint as our welding joints. it's because our project design is mostly compartment -shaped. We are confident in our choice to make this project a success. In addition, we are also skilled in welding such welding joints as we have practiced during the workshop.

3.4 EQUIPMENT

GTAW Welding Machine

TIG Welding Torch

TIG Rod

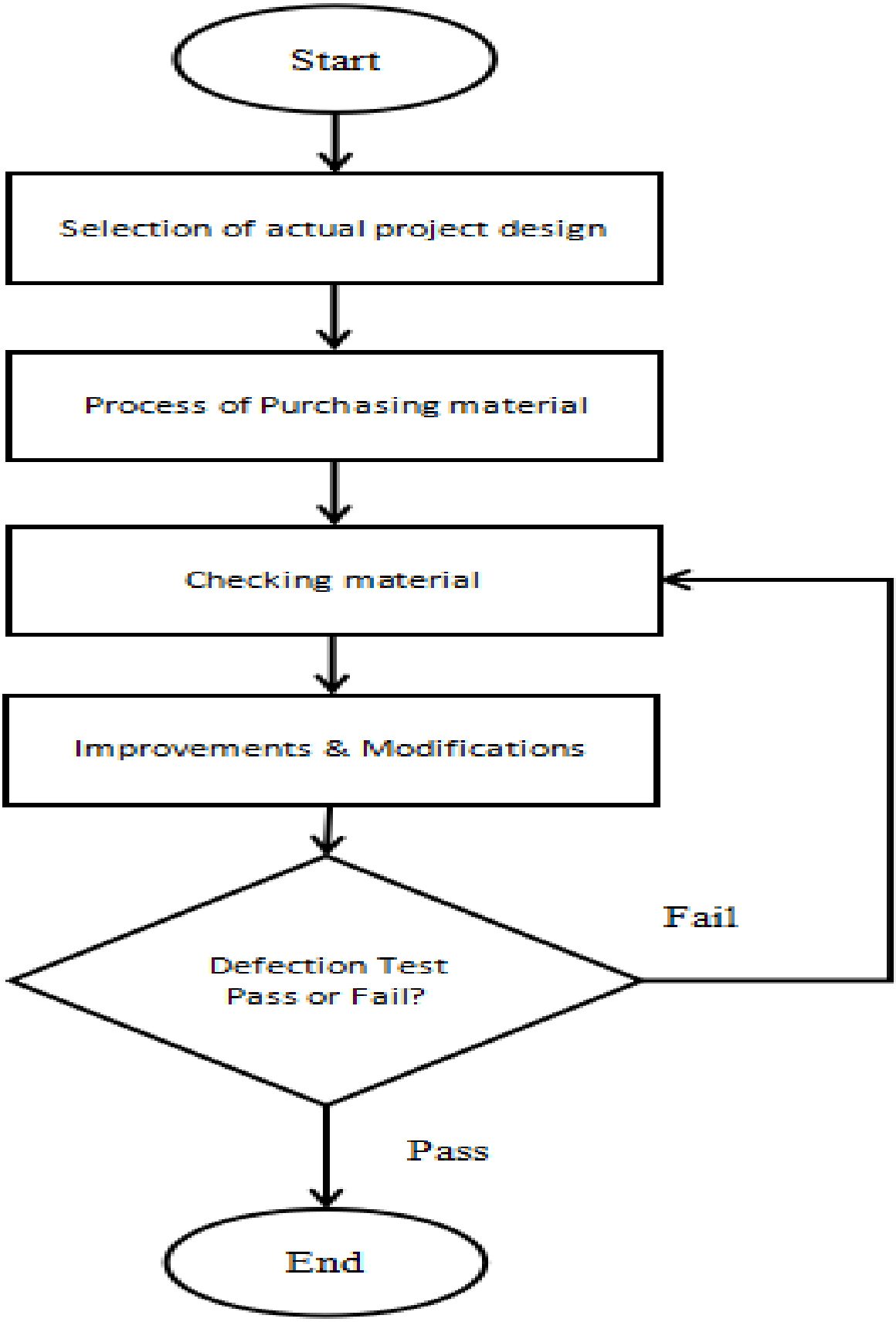
Shielding Gas

Welding Helmet

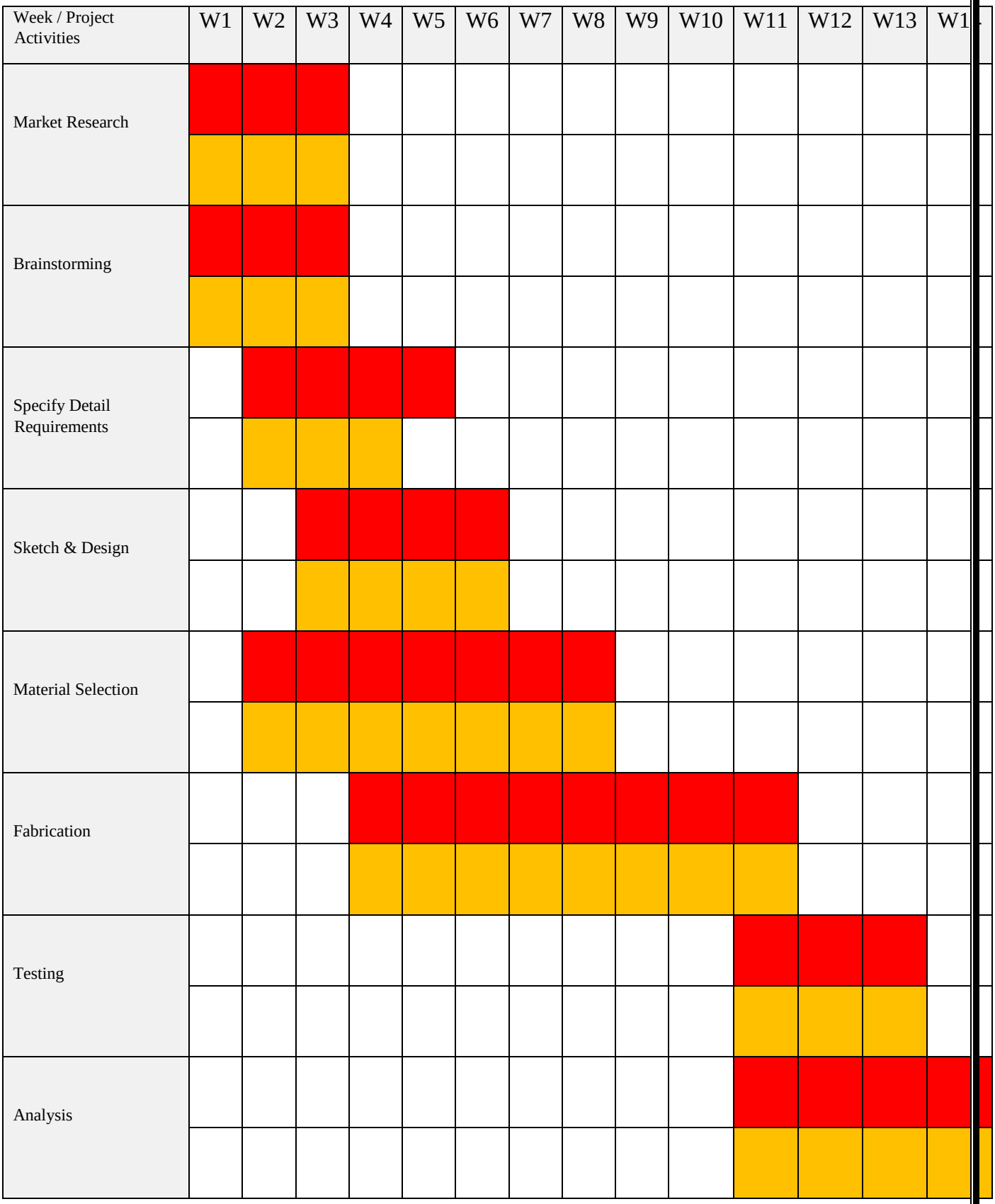
Welding Glove

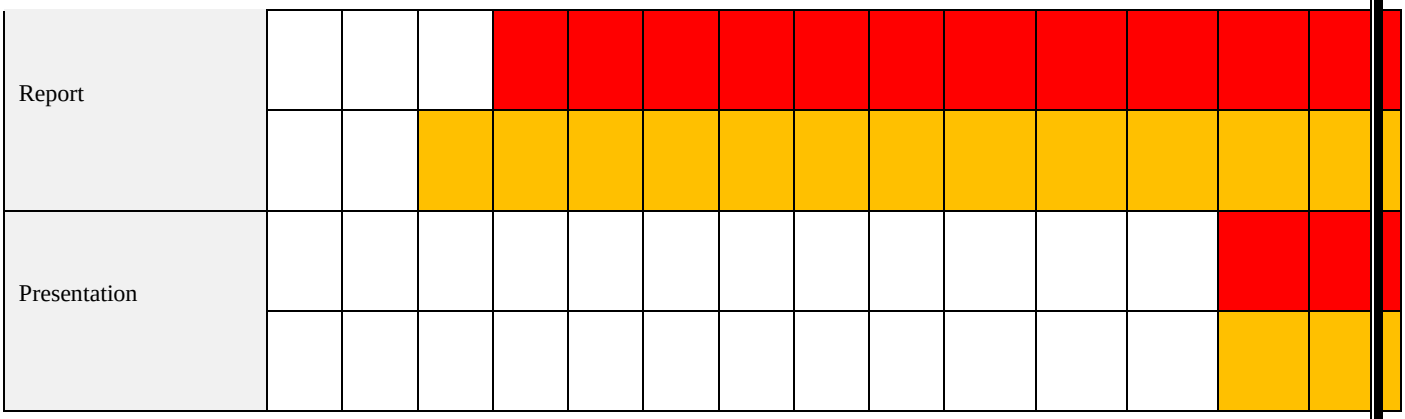
Grinder Machine

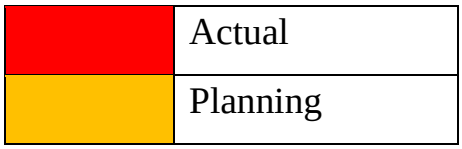
3.5 FLOW CHART



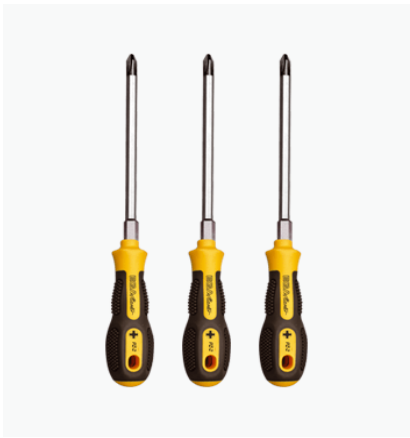
3.6 GANT CHART




Report
Presentation


Actual
Planning

WORK EQUIPMENT

Equipment	Diagram
Laptop	
Test Pen	
Screwdriver	

Grinder	
Welding machine	
Player	

COST ESTIMATION

COST OF THIS PROJECT

MATERIAL	QUANTITIES	RM
RFID READER	1	50
RFID TAG (CARD + MODULE)	1	20
BRUSHLESS DC MOTOR	1	75
ESP32 WIFI BLUETOOTH MODULE	1	30
STAINLESS STEAL	4	70
AC DC ADPATER PLUG	1	25
BOOM BARRIER ARM	1	50
BREADBOARD FULL SIZE	1	10
	TOTAL	260

TOTAL LABOUR COST

TYPES OF COURSE	DURATIONS	TOTAL COST(RM)
WELDING WORKPLACE + EQUIPMENT	15 days	50
ARDUINO PROGRAMMING TUTOR AND SUPPORT	40 days	300
RENTED EQUIPMENT	7 days	30
	SUBTOTAL	380

LIST OF MATERIAL

NODEMCU ESP32 DEVKIT V1

With an on-module flash-based SPIFFS file system, NodeMCU is an open-source Lua-based firmware for the ESP32 and ESP8266 Wi-Fi SOC from Espressif. The Espressif ESP-IDF is stacked with the NodeMCU, which is built in C. The firmware was first created as an add-on project for the well-liked ESP8266-based NodeMCU development modules, but now that the project has community backing, it may be used with any ESP module.

ARDUINO BREADBOARD

For projects using microcontroller boards, such as Arduino, a breadboard is a solderless construction base used for designing an electronic circuit and wiring. Even though they appear ordinary, utilising one could feel intimidating at first.Temporary circuits are constructed using a breadboard, often known as a plugblock. Designers may quickly remove and change components because to its usefulness. It is helpful for someone who wants to construct a circuit to show how it works before reusing the parts in another circuit.A breadboard is made of a plastic block that is home to a grid of electrical sockets that can accommodate pins from transistors and integrated circuits (ICs), component wires, and thin connecting wire. Inside the, the sockets are linked.

ARDUINO DC 5V/12V

You can control a DC motor by attaching an L298 bridge IC to an Arduino.The most typical kind of motor is a direct current, or DC, motor. Typically, DC motors only have two leads: a positive lead and a negative lead. The motor will turn if you connect these two lines straight to a battery. The motor will turn in the other direction if the leads are switched.You may use a circuit known as an H-Bridge to change the direction of a DC motor's spin without altering the way the leads are connected. An electrical circuit that can operate the motor both ways is called a H bridge. H-bridges have a wide range of uses, with robot motor control being one of the most popular.

BREADBOARD JUMPWIRE

Simply said, jumper wires are cables having connector pins at each end that may be used to connect two places without soldering. With breadboards and other prototype tools, jumper wires are frequently used to make it simple to alter a circuit as required. Fairly easy. Jumper wires are actually among the most elementary things there are.They are used to link the parts of a breadboard or circuit together, either directly or by cables with other parts. Jumper wires eliminate the need for soldering.

RFID RC522

A 13.56MHz electromagnetic field is generated by the RC522 RFID reader module in order to interface with RFID tags (ISO 14443A standard tags).With a maximum data rate of 10 Mbps, the reader may interface with a microcontroller using a 4-pin SPI connector. Additionally, it supports the I2C and UART protocols for communication. Instead of continually asking itself, "Is there a card nearby?" the RC522 RFID module may be designed to trigger an interrupt, allowing it to warn us when a tag approaches it. The good news is that while though the module's operational voltage spans from 2.5 to 3.3V, the logic pins are 5-volt tolerant, allowing us to connect it directly to an Arduino or other 5V logic microcontroller without the need for a logic level converter.

ALUMINIUM PLATE

Metal plate products made of aluminium are essentially maintenance-free and resistant to corrosion. In comparison to other metals, aluminium plate offers an unrivalled strength-to-weight ratio and weighs around one-third as little as iron, steel, copper, or brass. While having electrical conductivity that is equivalent to copper goods, aluminium components maintain greater heat conductivity than any other common metal.Equipment for food preparation can be made of non-toxic aluminium. It is ideal for light fixtures since it is reflecting and non-combustible (does not burn).

HIGH GEAR DC MOTOR

A revolving electro-mechanical device known as a dc motor, or direct current electrical motor, converts electrical energy into mechanical energy. As shown in figure 1 below, an inductor (coil) generates a magnetic field when dc voltage is given to the motor terminals, which causes rotational motion.

An iron shaft that is covered in a coil of wire is located within the electric motor. On either side of this shaft, there are two fixed North and South magnets. These magnets produce torque by exerting both an attracting and a repulsive force. Brushless and brushed DC motors are both designed and produced by ISL Products. Additionally, we adjust the size and functionality of our DC motor to match your required specifications.

POLYSTYRENE BOARD

A direct current motor, often known as an electrical motor that rotates,Polystyrene beads are used to create the stiff foam material known as polystyrene board. Polystyrene's main ingredient is styrene, a petrochemical byproduct. It is offered in a range of densities and has several uses in the residential, commercial, and industrial sectors. It frequently serves as insulation. Foam or bead boards are other names for polystyrene boards.Liquified polystyrene beads are used in the XPS procedure. To make a foamy mixture, a gas is introduced into the liquefied beads. After that, the liquid is put into a mould and given time to cure. Then, boards are made from the hardened polystyrene. To avoid water absorption, EPS and XPS boards may have a paper or foil front attached to the completed board.

CODING LIST OF ARDUINO IDE

```
#include <Deneyap_Servo.h>
#include <SPI.h>
#include <MFRC522.h>

#define SS_PIN 39
#define RST_PIN 42

MFRC522 mfrc522(SS_PIN, RST_PIN);
Servo myservo;
int servoPin = 16;

void setup() {
  Serial.begin(115200);
  SPI.begin();
  mfrc522.PCD_Init();
  myservo.attach(3,5);
}

void loop() {
  if ( ! mfrc522.PICC_IsNewCardPresent()) {
    return;
  }
  if ( ! mfrc522.PICC_ReadCardSerial()) {
    return;
  }
  String uid = "";
  for (byte i = 0; i < mfrc522.uid.size; i++) {
    uid += String(mfrc522.uid.uidByte[i] < 0x10 ? "0" : "");
    uid += String(mfrc522.uid.uidByte[i], HEX);
  }
  uid.toUpperCase();
  Serial.println("UID: " + uid);
  if (checkUID(uid)) {
    myservo.write(180);
    delay(20000);
    myservo.write(0);
  }
  mfrc522.PICC_HaltA();
  mfrc522.PCD_StopCrypto1();
}

bool checkUID(String uid) {
  // Check UID against database
  return true;
}
```

```
#include <SPI.h>
#include <MFRC522.h>
#include <Arduino.h>
#include <WiFi.h>
#include <HTTPClient.h>
#include <WiFiClient.h>
#include <AsyncTCP.h>
//----------------------------------------
#define RST_PIN  39
#define SS_PIN   42
#define BUZZER   16
//----------------------------------------
MFRC522 mfrc522(SS_PIN, RST_PIN);
MFRC522::MIFARE_Key key;
MFRC522::StatusCode status;
//----------------------------------------
/* Be aware of Sector Trailer Blocks */
int blockNum = 2;
/* Create another array to read data from Block */
/* Legthn of buffer should be 2 Bytes more than the size of Block (16
Bytes) */
byte bufferLen = 18;
byte readBlockData[18];
//----------------------------------------
String card_holder_name;
const String sheet_url = "ENTER_YOUR_SHEET_URL";
//----------------------------------------
// Fingerprint for demo URL, expires on Monday, May 2, 2022 7:20:58 AM,
needs to be updated well before this date
const uint8_t fingerprint[20] = {0x9a, 0x87, 0x9b, 0x82, 0xe9, 0x19,
0x7e, 0x63, 0x8a, 0xdb, 0x67, 0xed, 0xa7, 0x09, 0xd9, 0x2f, 0x30, 0xde,
0xe7, 0x3c};
//9a 87 9b 82 e9 19 7e 63 8a db 67 ed a7 09 d9 2f 30 de e7 3c
//----------------------------------------
#define WIFI_SSID "ENTER_YOUR_WIFI_SSID"
#define WIFI_PASSWORD "ENTER_YOUR_WIFI_PASSWORD"
//----------------------------------------




/*****************************************************************************
****************************
 * setup() function
 *****************************************************************************
****************************/
void setup()
{
  //-------------------------------------------------
```

```
  /* Initialize serial communications with the PC */
  Serial.begin(112500);
  //Serial.setDebugOutput(true);
  //-----------------------------------------------
  //WiFi Connectivity
  Serial.println();
  Serial.print("Connecting to AP");
  WiFi.begin(WIFI_SSID, WIFI_PASSWORD);
  while (WiFi.status() != WL_CONNECTED){
    Serial.print(".");
    delay(200);
  }
  Serial.println("");
  Serial.println("WiFi connected.");
  Serial.println("IP address: ");
  Serial.println(WiFi.localIP());
  Serial.println();
  //-----------------------------------------------
  /* Set BUZZER as OUTPUT */
  pinMode(BUZZER, OUTPUT);
  //-----------------------------------------------
  /* Initialize SPI bus */
  SPI.begin();
  //-----------------------------------------------
}



/*****************************************************************************
*****************************
 * loop() function
 *****************************************************************************
*****************************/
 void loop()
{
  //-----------------------------------------------
  /* Initialize MFRC522 Module */
  mfrc522.PCD_Init();
  /* Look for new cards */
  /* Reset the loop if no new card is present on RC522 Reader */
  if ( ! mfrc522.PICC_IsNewCardPresent()) {return;}
  /* Select one of the cards */
  if ( ! mfrc522.PICC_ReadCardSerial()) {return;}
  /* Read data from the same block */
  //-----------------------------------------------
  Serial.println();
  Serial.println(F("Reading last data from RFID..."));
  ReadDataFromBlock(blockNum, readBlockData);
```

```
  /* If you want to print the full memory dump, uncomment the next line
*/
  //mfrc522.PICC_DumpToSerial(&(mfrc522.uid));

  /* Print the data read from block */
  Serial.println();
  Serial.print(F("Last data in RFID:"));
  Serial.print(blockNum);
  Serial.print(F(" --> "));
  for (int j=0 ; j<16 ; j++)
  {
    Serial.write(readBlockData[j]);
  }
  Serial.println();
  //---------------------------------------------------
  digitalWrite(BUZZER, HIGH);
  delay(200);
  digitalWrite(BUZZER, LOW);
  delay(200);
  digitalWrite(BUZZER, HIGH);
  delay(200);
  digitalWrite(BUZZER, LOW);
  //---------------------------------------------------

  //MMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM
MMMMMMMMMMMMMMMMMMMMMMMMMM
  if (WiFi.status() == WL_CONNECTED) {
    //-----------------------------------------------------------------
-------------
    std::unique_ptr<BearSSL::WiFiClientSecure>client(new
BearSSL::WiFiClientSecure);
    //-----------------------------------------------------------------
-------------
    client->setFingerprint(fingerprint);
    // Or, if you want to ignore the SSL certificate
    //then use the following line instead:
    // client->setInsecure();
    //-----------------------------------------------------------------
    card_holder_name = sheet_url + String((char*)readBlockData);
    card_holder_name.trim();
    Serial.println(card_holder_name);
    //-----------------------------------------------------------------
    HTTPClient https;
    Serial.print(F("[HTTPS] begin...\n"));
    //-----------------------------------------------------------------

    //NNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNN
NNNNNNNNNNNNNNNNNNNNNNNNNN
    if (https.begin(*client, (String)card_holder_name)){
```

```
      //-----------------------------------------------------------------
-
      // HTTP
      Serial.print(F("[HTTPS] GET...\n"));
      // start connection and send HTTP header
      int httpCode = https.GET();
      //-----------------------------------------------------------------
-
      // httpCode will be negative on error
      if (httpCode > 0) {
        // HTTP header has been send and Server response header has been
handled
        Serial.printf("[HTTPS] GET... code: %d\n", httpCode);
        // file found at server
      }
      //-----------------------------------------------------------------
-
      else
      {Serial.printf("[HTTPS] GET... failed, error: %s\n",
https.errorToString(httpCode).c_str());}
      //-----------------------------------------------------------------
-
      https.end();
      delay(1000);
    }
    //NNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNN
NNNNNNNNNNNNNNNNNNNNNNN
    else {
      Serial.printf("[HTTPS} Unable to connect\n");
    }
    //NNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNN
NNNNNNNNNNNNNNNNNNNNNNN
  }
  //MMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM
MMMMMMMMMMMMMMMMMMMMMMMMMMM
}



/*****************************************************************************
*****************************
 * ReadDataFromBlock() function
 *****************************************************************************
*****************************/
void ReadDataFromBlock(int blockNum, byte readBlockData[])
{
  //--------------------------------------------------------------------
--------
```

```
  /* Prepare the ksy for authentication */
  /* All keys are set to FFFFFFFFFFFFh at chip delivery from the factory
*/
  for (byte i = 0; i < 6; i++) {
    key.keyByte[i] = 0xFF;
  }
  //-------------------------------------------------------------------
--------
  /* Authenticating the desired data block for Read access using Key A
*/
  status = mfrc522.PCD_Authenticate(MFRC522::PICC_CMD_MF_AUTH_KEY_A,
blockNum, &key, &(mfrc522.uid));
  //-------------------------------------------------------------------
--------s
  if (status != MFRC522::STATUS_OK){
     Serial.print("Authentication failed for Read: ");
     Serial.println(mfrc522.GetStatusCodeName(status));
     return;
  }
  //-------------------------------------------------------------------
--------
  else {
    Serial.println("Authentication success");
  }
  //-------------------------------------------------------------------
--------
  /* Reading data from the Block */
  status = mfrc522.MIFARE_Read(blockNum, readBlockData, &bufferLen);
  if (status != MFRC522::STATUS_OK) {
    Serial.print("Reading failed: ");
    Serial.println(mfrc522.GetStatusCodeName(status));
    return;
  }
  //-------------------------------------------------------------------
--------
  else {
    Serial.println("Block was read successfully");
  }
  //-------------------------------------------------------------------
--------
}
```

DISCUSSION

Our project focuses on the implementation of boom barriers, also known as boom gates, which serve as a means to control and restrict access to specified areas. These barriers consist of bars or poles that pivot to block vehicles or pedestrians from passing through a controlled point. Typically, boom gates lift vertically in an arc until they are nearly upright. Counterweights are often used to make it easier to tip the pole.

Commonly used in residential and industrial settings, these boom gates can be placed end-to-end or offset to manage traffic flow in both directions. Some designs include a secondary arm positioned below the top arm, which improves visibility when lowered. As the barrier raises, this secondary arm rests flat against the main boom.

Our project aims to integrate a modern RFID system with gate barriers in response to technological advancements. This RFID-enabled gate barrier system will allow for efficient organization of entry and exit data. The main objectives of this project are enhancing security measures, reducing the time required to open the gate, and providing better control over access times. In doing so, we aim to create a more effective and secure method for managing access points than traditional manually operated gate barriers.

CONCLUSION

Installation analysis is the subtitle for Chapter 3 subtitle. How to implement the study's analysis and I also described it by comparing the appropriate methods and tools to show why I chose those for this project and why it was a wise choice.

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