

PROPOSAL PROJECT
“ E-CANTEEN APPLICATION”



BY:

BRIAN SAYUDHA - 1841720158

EKO SETIO WIJANARKO - 1841720043

ARGA DIAZ PRAWIRA YUDHA- 1841720087



STUDY PROGRAM INFORMATICS ENGINEERING
DEPARTMENT INFORMATION TECHNOLOGY
STATE POLYTECHNIC OF MALANG

2021



KEMENTERIAN PENDIDIKAN DAN KEBUDAYAAN
POLITEKNIK NEGERI MALANG
JURUSAN TEKNOLOGI INFORMASI
PROGRAM STUDI TEKNIK INFORMATIKA

Jl. Soekarno Hatta No.9 Malang 65141
Telp (0341) 404424 – 404425 Fax (0341) 404420
Laman://www.polinema.ac.id Email:cs@polinema.ac.id



27 September 2021

Number : 001/ECT/I/2021
Attachment : -
About : Application Offer Letter

Dear. Head of Study Program DIV Informatics Engineering

We write this letter to you on behalf of Politeknik Negeri Malang, especially Jurusan Teknologi Informasi. It has come to my knowledge that you need some application that helps the canteen business in Politeknik Negeri Malang to be more optimal. It would be our pleasure to inform you that we created an **“E-Canteen Application”** that will help provide more service to students and sellers to make it more accessible and more optimal or faster. Our **“E-Canteen Application”** will increase the productivity of the Politeknik Negeri Malang canteen and even students will understand the existing technological advances.

Based on the above description. We would like to offer you our application and place an order for this application as soon as possible. we will help you to setup the application so Politeknik Negeri Malang especially Jurusan Teknologi Informasi, can increase productivity and still be able to focus on existing activities

Thus we make this offer letter, Thank you for your attention.

Regards,

Malang, 4 October 2021

Team 2, Project 3

Table of contents

Application Offer Letter	2
Table of contents	3
CHAPTER 1	
PRELIMINARY	4
Background	4
Purpose	5
Benefit	5
For Students	5
For Seller	5
For School or University	5
Project Scope / System Offered	6
Staffing	6
CHAPTER 2	
BUDGET AND BUSINESS MODEL	7
Business Model	7
Function of E-Canteen Application	7
Application Use Case Diagram	8
Budgeting and Resources	9
CHAPTER 3	
ATTACHMENT	10
CV / RESUME STAFF	10

CHAPTER 1 PRELIMINARY

1.1. Background

Living in the current era of information technology development, provides convenience in various fields. In line with this, Human Resources (Sumber Daya Manusia) are needed to utilize their abilities in all fields and also need a tool that facilitates human work so that it is more optimal. The tools needed must be in accordance with the current era developments and even have to follow these era developments, so that humans can use these tools continuously, easily, and efficiently. Therefore, we expect a tool that can last for how many periods and face existing or future problems.

The problems that occur are of course various, with this situation we are required to continue to develop in solving existing problems. For example, trivial problems in educational support places such as the existing canteen problem.

The canteen is very important in existing schools and universities, the canteen helps students to stay enthusiastic when doing lessons because it can help improve mood and food needs. but with existing problems such as unorganized queues, payments that are quite complicated for both sellers and buyers and feelings of unfairness in terms of service are points that need to be considered. This can be detrimental to both parties and even students who are expected to take classes with enthusiasm will have an effect on this.

Year	Transaction Volume		Transaction Nominal	
	Cash	Non Cash	Cash	Non Cash
2013	60,56%	39,44%	41,72%	58,28%
2018	39,93%	60,06%	39,06%	60,94%

Source : Bank Indonesia

The compilation of Bank Indonesia data shows that non-cash transactions are growing very rapidly. In 2013, the volume of non-cash transactions was only 39.44% of total transactions, while cash transactions still dominated 60.56%. However, in 2018 non-cash transactions dominated 60.6%, while cash transactions were 39.93%.

To facilitate the existence of canteen services in schools and universities, the e-canteen application can be used to reduce these problems, so that canteen services will be more optimal, more efficient, and can improve the mood of students to stay enthusiastic in carrying out existing learning activities.

1.2. Purpose

This application has several purposes, including:

1. Facilitate transactions between students and sellers in the canteen.
2. Improve the development of canteen services in schools or universities with the latest technology.
3. Adding insight and knowledge about how easy it is to make transactions with online applications and other latest technologies.
4. Optimize window shopping activities so as to reduce crowds in the canteen and speed up purchases.
5. Reduce student feeling of unfairness in terms of existing services

1.3. Benefit

The following are the benefits offered by the application to users:

1.3.1. For Students

- A. Can get used to the development of existing technology.
- B. Facilitate transactions in purchasing goods and food available in the canteen.
- C. Facilitate to choose any available goods or foods in the canteen.

1.3.2. For Seller

- A. Can get used to the development of existing technology.
- B. Facilitate transactions in selling goods and food available in the canteen.
- C. Facilitate bookkeeping activity and display the required information to buyers

1.3.3. For School or University

- A. Increase efficiency in terms of student learning activities at school or university.
- B. Increase the quality of service in the school or University, especially the canteen

1.4. Project Scope / System Offered

The e-canteen will provide a means to make it easier for students to make transactions and order goods and food available at the school or university canteen with the latest available technology.

In this technology we can use the internet to place orders and use e-money to make existing payments. In the e-money, schools or universities can create a token that is exchanged for real money to make payments. For validation of taking orders we can use RFID (Radio Frequency Identification) so that validation becomes faster and more stable.

This application is suitable for use in companies, especially schools or universities that have very crowded canteens and need transactions quickly and accurately.

1.5. Staffing

Lead Engineer		
1.	Nama	Brian Sayudha
	NIM	1841720158
	Alamat	Jl. Danau Paniai Utara IV C7 C14, Kota Malang
	Telepon	+6283834362007
	Email	briansayudha@gmail.com
Engineer		
1.	Nama	Arga Diaz Prawira Yudha
	NIM	1841720087
	Alamat	Jl. A. Yani RT-01 RW-03, Sumber Porong, Lawang, Malang
	Telepon	+6281252110562
	Email	argadiaz09@gmail.com
2.	Nama	Eko Setio Wijanarko
	NIM	1841720043
	Alamat	Jl. Wolter Monginsidi RT. 32, Baru Ulu, Balikpapan Barat
	Telepon	+6282240640884
	Email	esw@gmx.com

CHAPTER 2

BUDGET AND BUSINESS MODEL

2.1. Business Model

2.1.1. Function of E-Canteen Application

There are several function in this e-canteen application, such as:

A. Admin

a. Login

For accessing admin data and function, the application will need some permission that determines that we are admin. So login is required for accessing all admin functions for safety reasons.

b. Manage User Data

User data needs to be managed by admin for safety reasons, user data will be managed such as, add new students data that will be using these application features and delete the student that no longer or already graduated.

c. Manage Transaction

Admin needs to manage some transactions, so users will make transactions safely and easy. managing transaction itself can make all existing transactions safer.

i. Set Payment Gateway

Admin needs to set a payment gateway that will be used later in this application. Here we can use API or manual transactions like manual transfer or token that will be set for university or school purposes.

ii. Set Payment Token

Payment Token in each university or school will be different, and the admin will set the token for payment in their university or school later. Admin can add student tokens for transaction purposes. They can add a token manually when some student sends the transfer proof to the admin.

d. Merchant Data Validation

Every person who will be a merchant must be validated by admin first, all of the merchant data will be examined manually by admin or else.

B. Merchant

a. Register

Person that wants to be a merchant must do a registration first, they need to send / fill required information such as identity for registration.

b. Login

If Merchant Data is validated by admin, they can login as a merchant to open shops and sell some items. Login as a merchant is required so the system can validate who will edit the shop's status, etc.

c. Open Shops

New merchants can open shops, they need to fill some shop information so users can get shop information easily. Because merchants need validation from admin, the shop itself automatically validates. but every merchant only have 1 (one) shops

d. Selling Items

After opening shops, merchants can sell their desired items in their shops.

i. Add Items

for selling items, merchants can add items that merchants want to sell. they will add some items with some description and other required information.

ii. Add Stock

Merchants can add stocks of available items, so merchants no need to add the same items again and again.

iii. Add Price

Merchants can add some selling plans or prices in their available items. prices are required to add because the user / buyer must know how much they spend for a single transaction.

e. Transaction

If some user/buyer buys their items, merchants can do transactions with the available payment gateway that is provided by admin. They can do offline transactions if the user/buyer chooses the COD option.

f. Message

In further development, merchants can message with users, so users know the information about items that they need.

C. User

a. Login

All of the user registration is registered by the admin itself. They can login in the application easily with some provided information. Login is needed for users to access the e-canteen apps, so the comfort and safety of every user is guaranteed.

b. Window Shopping

After login, users can see all available canteens/shops that are provided in application or universities/school. They can see what items that are available for buy, how many stocks that are available on that day, and how much price per item will be.

c. Buying Items

After window shopping, users can checkout to buy some items that they want. Buying items will be redirected to the transaction.

i. Validating buy

After buying and doing transactions, the buyer/user needs to validate their orders in the canteen counter with their RFID card. so the seller is sure that it is the item bought by the user/buyer and the buyer can validate their orders easily.

d. Transaction

After checkout the order, the user/buyer needs to do a transaction to pay for their stuff in canteens, transaction can be done by online method or offline method.

e. Review

After buying some items, they can do a review about the items and shops. Reviews can be seen on the purchased item page, so other buyers know about the item being sold.

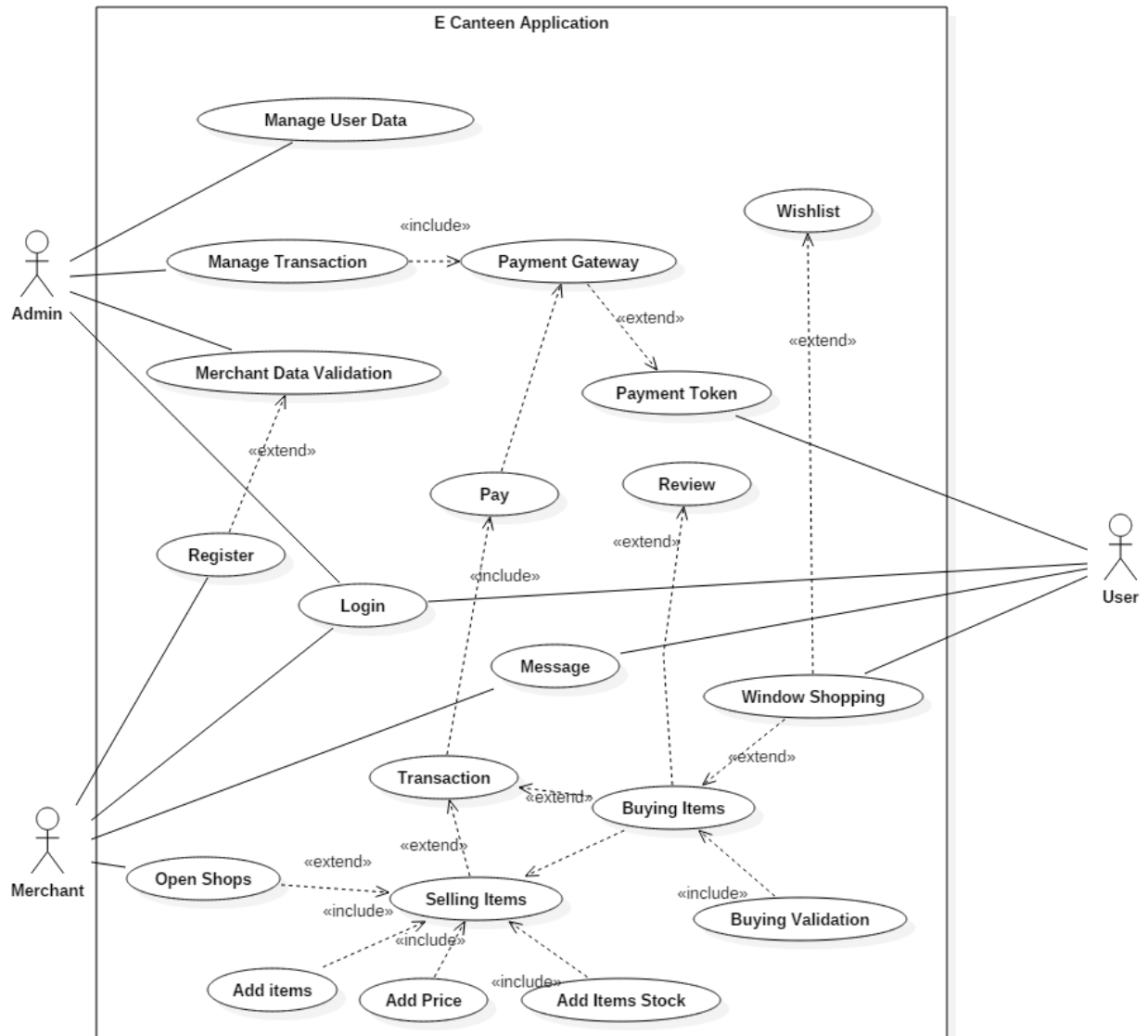
f. Wishlist

User/Buyer can add some items to their favorite items, so user/buyer can easily find their favorite items to buy in canteens.

g. Payment Token

Users/Buyer can add their Payment token by some payment gateway that is available or transfer manually by sending some money to the application payment account, send the proof to available forms and they will get payment token to do the transaction.

2.1.2. Application Use Case Diagram



2.2. Budgeting and Resources

2.2.1. Developer Budget

#	Services	Duration / Days	Duration/ hrs	Total Duration / hrs	Cost Hrs	Subtotal	Description
1.	Planning						
1.1	Project Analysis Problem	3	8	24	Rp65.000,00	Rp1.560.000,00	Every company always encounter different problem, so the cost can be vary (this is the base cost and base estimated duration)
1.2	Project Solution	3	8	24	Rp65.000,00	Rp1.560.000,00	Solution cost is based on problem that encounter in every company so cost may be vary (this is the base cost and base estimated duration)
1.3	Project Requirement	4	8	32	Rp65.000,00	Rp2.080.000,00	Requirement can be found based on solution that we find, so cost may be vary (this is the base cost and base estimated duration)
1.4	Project Planning Documentation	4	8	32	Rp65.000,00	Rp2.080.000,00	Planning documentation will need some file that will help developer in near future
Total Planning Cost						Rp7.280.000,00	
2.	Design						
2.1	Database Design	4	8	32	Rp55.000,00	Rp1.760.000,00	Database design will include ERD, CDM, PDM or design that will help developer to create database
2.2	UI/UX Design	7	8	56	Rp50.000,00	Rp2.800.000,00	UI/UX design will include all design of application and the user experience when user using application
Total Design Cost						Rp4.560.000,00	
3.	Development						
3.1	Develop Admin Function	17	8	136	Rp60.000,00	Rp8.160.000,00	Function in Admin minimum contains all in use case above
3.2	Develop User Function	17	8	136	Rp60.000,00	Rp8.160.000,00	Function in User minimum contains all in use case above
3.3	Develop Merchant Function	17	8	136	Rp60.000,00	Rp8.160.000,00	Function in Merchant minimum contains all in use case above
3.4	Develop Transaction Function	6	8	48	Rp60.000,00	Rp2.880.000,00	Transaction will contains all API Payment Gateway or only simple transaction that do manually (this budget separated because transaction has it owns security)
3.5	Develop Admin Web View	20	8	160	Rp50.000,00	Rp8.000.000,00	Will contains minimum all in UI/UX design
3.6	Develop User Web View	20	8	160	Rp50.000,00	Rp8.000.000,00	Will contains minimum all in UI/UX design
3.7	Develop Merchan Web View	20	8	160	Rp50.000,00	Rp8.000.000,00	Will contains minimum all in UI/UX design
Total Development Cost						Rp51.360.000,00	
4.	Testing						
4.1	Functional Testing	5	8	40	Rp55.000,00	Rp2.200.000,00	Testing will done by QA Engineer, testing will be test all of application functionality
4.2	Project Revision	7	8	56	Rp55.000,00	Rp3.080.000,00	All Bugs or error that encounter in testing must be revised
Total Testing Cost						Rp5.280.000,00	

5.	Deployment / Implementation						
5.1	Deploy Website to Client Server	3	8	24	Rp55.000,00	Rp1.320.000,00	Application that done in development will be installed in company private server to gain more security (if need some hosting from another services so cost can be increased)
5.2	Deploy REST API	2	8	16	Rp60.000,00	Rp960.000,00	API must be deployed into different server (cloud server), so application running smoothly (no lagging because same server access)
5.3	Maintenance after installation	2	8	16	Rp55.000,00	Rp880.000,00	After installation it can be some bugs or error appear, and some server need re deployment in application so we can do maintenance to get the application fixed in time
Total Deployment Cost						Rp3.160.000,00	
6	Others						
6.1	API Subscription	30	-	-	Rp5.000,00	Rp150.000,00	API sunscription will be used for payment gateway and subscription of REST API
6.2	Tools Subscription	30			Rp5.000,00	Rp150.000,00	Tools like UI/UX software, Code Editor, etc. it can be needed some subscription for open all it's features
Total Deployment Cost						Rp300.000,00	
Total Developer Budaet						Rp71.940.000,00	

2.2.2. Items Budget

#	Items	Quantity	Estimated Durability	Cost / Pcs	Subtotal	Description
1.	RFID Card	390	4 Year	Rp2.500,00	Rp975.000,00	RFID Card is needed for validation in this application
2.	Card Printer	2	5 Year	Rp10.000.000,00	Rp20.000.000,00	Printer is needed for print RFID card that matches to student id
Items Budget					Rp20.975.000,00	

2.2.3. Total Budget

#	Name	Price
1.	Total Services Budget (3 month estimated time Development)	Rp71.940.000,00
2.	Total Items in Needed For Development	Rp20.975.000,00
Total		Rp92.915.000,00

CHAPTER 3 ATTACHMENT

3.1 CV / RESUME STAFF

- Brian Sayudha

Brian Sayudha
Data Enthusiast

 +62 838 3436 2007
 briansayudha@gmail.com
 linkedin.com/in/brian-sayudha/
 github.com/Brian-Kraosio

[Professional Summary]

Currently, I am a 7th-semester student majoring in Information Technology at State Polytechnic of Malang. I have developed excellent analytical skills through my experience in organizations, my degree internship, and implement this skill in the field of Backend Engineer (Cloud, Data, Website). My hard work and dedication have been listed in all the projects I have completed and also the educational programs that I have taken so far. I like to solve problems from different points of view and find a new solution and I like to take challenges from the code that I learn and generate a unique feeling of pleasure. With all the experience I got, I am looking for new opportunities to add my knowledge and experience to a higher level by real-world problems, specifically as a Backend Engineer.

[Experiences]

- Techx Indonesia | Back-end Engineer – Intern** July 2021 - Present
Responsibilities :
 - Develop a Back-end Application for front-end use in the form of APIs
 - Intergrate with Front-end Developers
 - Create data safely and comfortably when used by front end engineers
- Bangkit Academy 2021 | Bangkit Graduate – Cloud Computing** February 2021- July 2021
Explanation :
 - Complete “Cloud Computing Learning Path” at Dicoding Indonesia and Coursera
 - Make a capstone project with 6 members to implement the knowledge gained with Smart Gardening Mobile Application
 - Pass with Final Grades : 95.98 (A)
- Himpunan Mahasiswa Teknologi Informasi | Steering Committee** February 2020-February 2021
Responsibilities:
 - Manage and Take Responsibility for Events that organized by Himpunan Mahasiswa Teknologi Informasi
 - Become Head of Departement PSDM (Pemberdayaan Sumber daya Mahasiswa) and educate members of the Organizing Committee to have leadership, responsibility and respect for one another
 - Oversees the performance of the organizing committee
- Himpunan Mahasiswa Teknologi Informasi | Organizing Committee** February 2019-February 2020
Responsibilities:
 - Manage events that organized by Himpunan Mahasiswa Teknologi Informasi
 - Oversees the performance of the organizing committee

[Educations]

University – Politeknik Negeri Malang Bachelor of Applied Science, Information Technology 2018 - 2022

- Achievement:
 - Mahasiswa Berprestasi 2019
 - Current GPA : 3.93
 - Participant of Shopee NDSC (National Data Science Competition) Beginner

Senior High School – SMAN 4 Malang MIPA 2015 – 2018

- Experience:
 - Member and vice-presidents of Fastco (Fotografi Animasi Student Creative Organization)
 - Member of MPK (Majelis Perwakilan Kelas) SMAN 4 Malang

[Skills]

Programming Languages :

- PHP | Advanced
- SQL | Advanced
- Java | Intermediate
- Python | Basic

Industry Knowledge :

- Laravel | Advanced
- CI | Advanced
- MariaDB | Advanced
- MySQL | Advanced
- Google Cloud Computing | Intermediate
- Git | Intermediate
- Object Oriented Programming | Intermediate
- HTML | Intermediate
- Microsoft SQL Server | Intermediate

Language :

- Indonesian | Native
- English | Advanced

[Projects]

Smart Gardening Apps (Mobile) :

- This Application uses Machine Learning to process images of our plant to identify it and give the user information about what plant that user wants to identify, tips and tricks, even possible diseases, and how to treat it.
- In this Application we use Google Cloud Platform to develop the Application and API so all of users can use it freely

Last Project Mobile Development Course (Gold Tracker):

- This is the Last Project of Politeknik Negeri Malang, Mobile Development Course in the 5th semester, this is an android application that uses API to get the gold price in real-time, and here we can see how much gold price today and what profit that we get if we sell our last inputted gold information. There are some graph for price fluctuations.

Last Project of Proyek Course (Website for Lecturer):

- This is the Last Project Assignment for Politeknik Negeri Malang Proyek 1 Course, I still use CodeIgniter 3 to get this website done, this website is for Show information about Dosen (Lecturer) RPS SAP, Class must attend, Research Group, Etc.
- Dosen (Lecturer) can upload some RPS and SAP to share with another dosen (lecturer) that have same material.

- Arga Diaz Prawira Yudha

ARGA DIAZ PRAWIRA YUDHA

Informatics Engineering Student

Profile

Frontend web developer with perfection in every way. Skilled in building a website or web app with an attractive and interactive display. Experienced in frontend development for more than 1 year.

Contact

argadiaz09@gmail.com
www.linkedin.com/in/arga-diaz-prawira-yudha/
github.com/ezio341

Education

POLITEKNIK NEGERI MALANG

Vocational Bachelor of Engineering
D4 - Informatics Engineering
CGPA: 3.9

SENIOR HIGH SCHOOL - SMAN 1 LAWANG

IPA

Organization

Himpunan Mahasiswa Teknologi Informasi

- Organized Prastudi (event for new student).
- Organized and manage DDM (dialogue of students and lecturers) events

Experiences

INTERNSHIP TECHX - FRONTEND DEVELOPER

PT. Sinergi Selaras Bersama, Jakarta Selatan

- Develop and maintain a website/ web app interface.
- Work with another development group such as UI/UX designer and backend.

INBOUND MOBILITY PROGRAM - IOT COURSE

Universiti Tun Hussein Onn Malaysia

Fundamental and practical course of Internet of Things.

STUDENT MOBILITY PROGRAMME/ CREDIT TRANSFER SYSTEM

International Islamic University of Malaysia

Transfer of college credit from Politeknik Negeri Malang to IIUM for 1 semester.

Projects

Intern - Nubie Landing

Website of driving course company, NUBIE.
nubie.techx.id

Intern - Ritase Landing

Website of logistic company, RITASE.
staging.www.rit-ase.com

Personal - Simple Ecommerce website

Ecommerce website that selling a fan.
mystore-web.netlify.app

Additional

TECHNICAL

HTML, CSS, JavaScript, ReactJS, VueJS, Figma, NodeJS, NPM

LANGUAGES

Fluent in Bahasa Indonesia and English

- Eko Setio Wijanarko

Eko Setio Wijanarko

Balikpapan, Indonesia | +62 82240640884 | ekosetio14@gmail.com | linkedin.com/in/eko-setio14

EXPERIENCE

Internship at PT PELABUHAN INDONESIA IV – Balikpapan, Indonesia

Web Developer and IT Staff

Jul 2021 – Present

- Create Integration Web Application of Information System for Access Card Pelabuhan Semayang Employee.
- Create Integration Web Application of Information System for Data Inventory Asset Company.
- Assemble and Repair Computer hardware (Installation Application and Operating System)

Inbound Mobility Programs – Universiti Tun Hussein Onn Malaysia, Malaysia

Student for Internet of Things Course

Mar 2021 – Present

- Create Project Internet of Things Implementation from Smart Device to the Cloud Platform Control.

WORKSHOP RISET INFORMATIKA – Malang, Indonesia

Multimedia Crew

Sep 2018 – Sep 2019

- Create a material lesson plan in a multimedia mini class for every month
- Volunteer of 'Open Talk' Program held by WRI to JTI Polinema Student for every month

EDUTAINMENT PROGRAM – Universiti Teknikal Malaysia Melaka, Malaysia

Participant

August 18, 2019 – August 25, 2019

- Learn Multicultural of Nation from different Country
- Leadership and Discipline Training of Teamwork

ORGANIZATION

DEWAN PERWAKILAN MAHASISWA POLITEKNIK NEGERI MALANG - Malang, Indonesia

Steering Committee

Feb 2020 – Feb 2021

Organization Committee

Feb 2019 – Feb 2020

- Moderator for National Seminar "4 Pillars of National Legislative Seminar" with Governor of the National Defense Institute
- Organised and advertised National Seminar event with 200+ participants in different college across East Java

EDUCATION

POLITEKNIK NEGERI MALANG – Malang, Indonesia

June 2018 – June 2022

Vocational Bachelor of Engineering, DIV Informatics Engineering, Cumulative GPA: 3.8

SMA NEGERI 3 BALIKPAPAN – Balikpapan, Indonesia

June 2015 - June 2018

IPA

ADDITIONAL

Technical:

HTML, PHP, SQL, JavaScript, Web Framework : Laravel & Code Igniter, Graphic Design (Photoshop & Illustrator), Video Editing (Premiere Pro), Office (Word, Excel, Power Point)

Languages:

Fluent in Bahasa Indonesia, English; Conversational Proficiency in Bahasa Indonesia, English.

Certifications & Training:

Elastic Cloud Infrastructure: Scaling And Automation (Google Cloud), Core Service (Google Cloud), Foundation (Google Cloud)

REFERENCES

[1]. Human Resources (Sumber daya manusia) :