PROJECT-BASED LEARNING REPORT

TEKNOLOGI REKAYASA MULTIMEDIA
POLITEKNIK NEGERI BATAM
2024

GROUP MEMBER

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PROJECT IDENTITY

Project Title	: Application Mobile Scale
Project Owner	: Sandi Prasetyaningsih.S.ST.,M.Media
Project Manager	: Agung Riyadi S.SI.M.Kom
Project Co-Manager	: -
Client	: Agung Riyadi,S.SI.M.Kom

Outputs :

✓	Final Report
✓	Product: *Mobile Application*/Hardware/video*
✓	Demo video /trailer*
✓	Scientific Poster
✓	Intellectual Property Rights Document
✓	Handover Document
	Contest Proposal (optional)

Approved by,
Batam, 27 June 2024

Agung Riyadi, S.Si. M.Kom
NIK. 119221

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1.1 Product Description

The Mobile Scale application is a program installed on a smartphone or tablet to weigh various objects, such as fruit, spices, and others, with a maximum weight of 10 kg. This app allows users to easily and accurately measure the weight of objects. Users can also convert weight units between grams, kilograms, and ounces, as well as calculate the total weight of multiple objects individually.

1.2 Product Design

Product design for a mobile application project should have the following design:

1. General system description.

Mobile Scale App is an application that allows users to weigh items easily and accurately using their smartphones. This app is designed to assist users in various situations, such as:

- Weighing items at home: Users can weigh items at home, such as groceries, packages, or other goods.
- Weighing items at stores: Users can weigh items at stores before purchasing to ensure they get the correct weight.
- Weighing items at the office: Users can weigh items at the office, such as documents, packages, or other goods.

The app has several key features, including:

- Item weighing: Users can weigh items by placing them on their smartphones. The app utilizes the smartphone's accelerometer sensor to calculate the item's weight.
- Data recording: Users can record data about the items they have weighed, such as item name, weight, date and time of weighing, and other information.
- Weighing history: Users can view their weighing history within the app. This can help users track the weight of items they have weighed.

2. Functional System Requirements

The Mobile Scale App must meet the following functional system requirements:

Core Features:

Item weighing:

- Weighing accuracy: The app must weigh items with an accuracy of at least 95%.
- Weighing capacity: The app must weigh items with a maximum weight of 10 kg.

- Weighing units: The app must support various weighing units, such as grams, kilograms, pounds, and ounces.

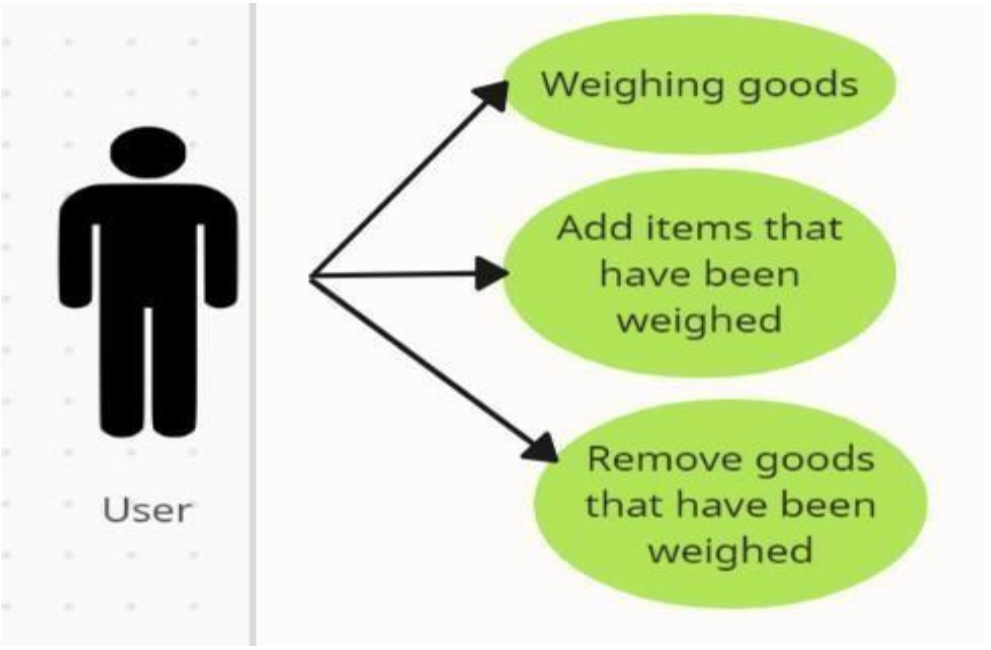
  Data recording:

- Users must be able to record item name, weight, date and time of weighing, and other information.
- Weighing data must be stored securely on the user's device.
- Users must be able to export their weighing data to CSV format or other formats.

  Weighing history:

- Users must be able to view their weighing history.
- Weighing history must be sortable by date, time, item name, or weight.
- Users must be able to delete their weighing history.

3. Use case



The description of the Use Case diagram of the QuickTemp application:

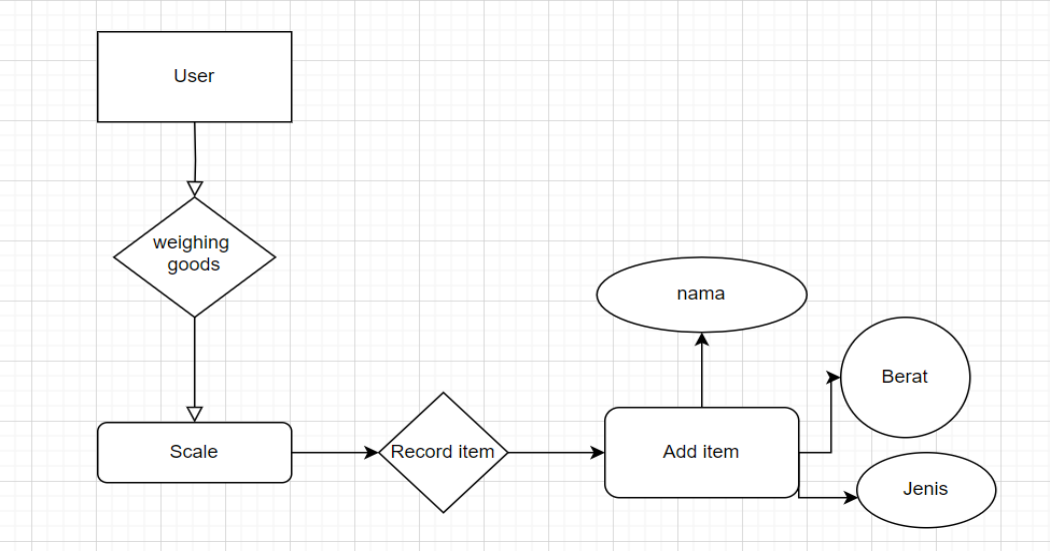
- Home Screen: Users start on the home screen, where they can choose to weigh a new item, record a previously weighed item, or view their weighing history.

- Item Weighing Screen: If users choose to weigh a new item, they are directed to the item weighing screen, where they place the item on the device and measure its weight.

- Item Recording Screen: Once the weight is measured, users can proceed to the item recording screen to capture details about the weighed item, such as its name, weight

- Weighing History Screen: Users can access their weighing history at any time by selecting the "History" button on the home screen. This screen provides a comprehensive overview of previously weighed items and allows for filtering and searching

4. ER diagram.

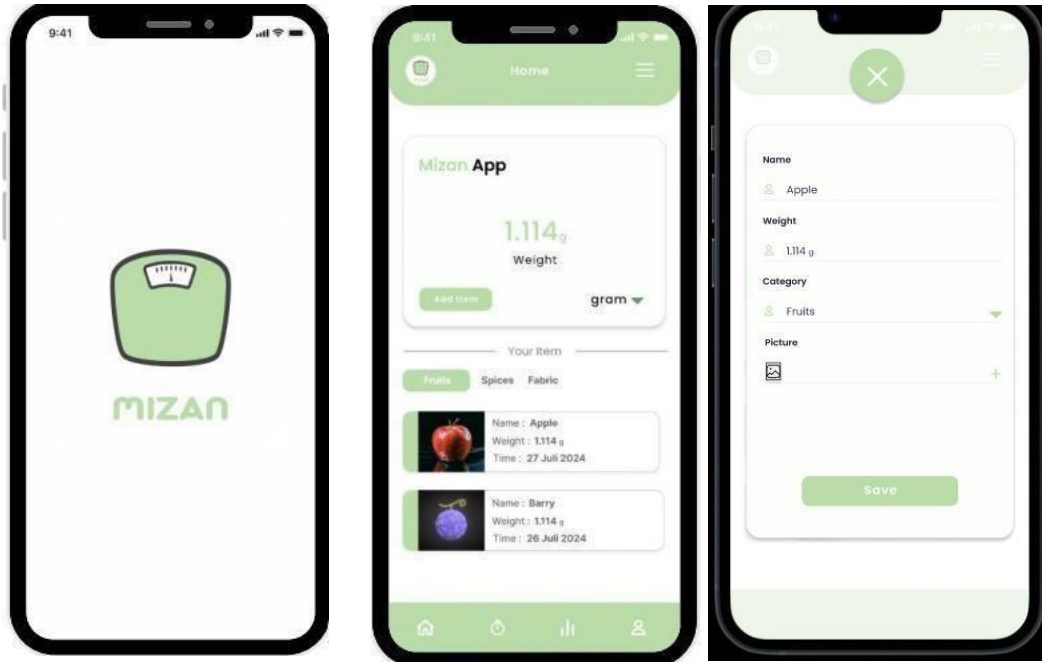


The ERD represents the relationships between the core entities in the mobile scale app:

Item: This entity represents the items being weighed by the app. It has attributes like item_id, item_name, item_type, and weight.

Weighing: This entity represents the weighing events, capturing the weight measurements for each item. It has attributes like weighing_id, item_id, weight, date, and time.

5. Product interface/architecture design.



6. **Programming Language**

Flutter, an open-source framework powered by the Dart programming language, revolutionizes cross-platform development by enabling developers to create stunning and dynamic user interfaces that seamlessly adapt across Android, iOS, web, and desktop platforms from a single codebase. With Dart's modern and efficient features such as a strong type system and automatic memory management, Flutter empowers developers to craft responsive and high-performance applications without compromise. This combination of a powerful framework and a versatile programming language positions Flutter as the go-to solution for developers seeking to deliver innovative, feature-rich applications with speed, efficiency, and unparalleled quality.

2. PRODUCT IMPLEMENTATION

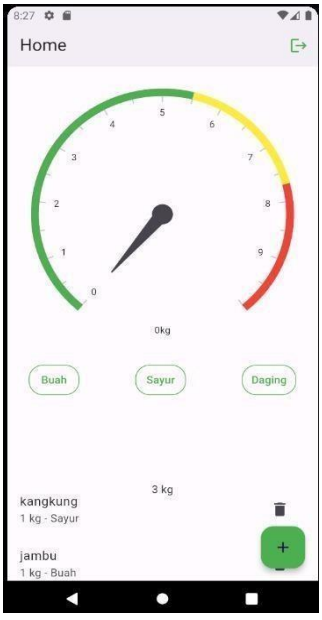
2.1 Product Implementation

Product implementation for mobile application projects:

1. **Implementation for user interface / product design.**

Welcome page

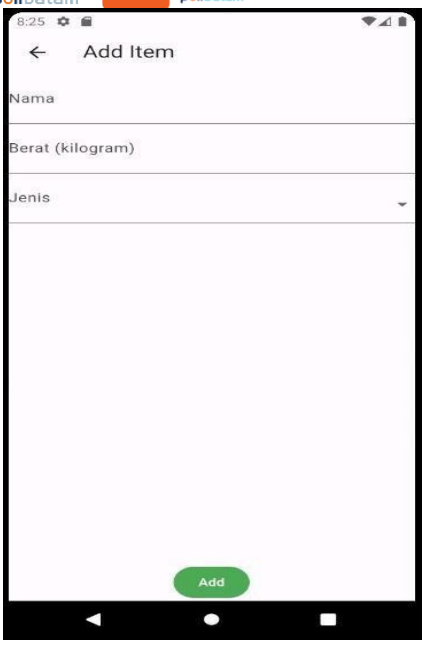
welcome screen display menu on the mobile scale application.



Home page

Item Weighing Screen:
The item weighing screen displays the current weight of the item being weighed. It also has a button to tare the scale, which resets the weight to zero.

- The home screen displays the current time and date.
- It also has three buttons:
    - **Weigh Item:** This button opens the item weighing screen.
    - **Record Item:** This button opens the item recording screen.



Add item page

The add item screen displays a form for users to enter information about the item they are weighing.

The form includes fields for the following information:

- **Nama:** The name of the item
- **Berat (kilogram):** The weight of the item in kilograms
- **Jenis:** The type of item

The screen also has a button to **Add** the item to the app's database.

2. Product testing result.

No.	Pernyataan	Sangat mudah (%)	Mudah (%)	Netral (%)	Sulit (%)	Sangat Sulit (%)
1	Seberapa mudah dipahami navigasi aplikasi mobile scale ini?	76,5	12,4	7,3	1,8	2
2	Seberapa mudah digunakan user interface pada aplikasi mobile scale ini?	65,8	23,7	5,3	2,6	2,6

No.	Pernyataan	Sangat menarik (%)	Menarik (%)	Kurang Menarik (%)	Tidak Menarik (%)
1	Seberapa menarik desain grafis aplikasi Mobile Scale?	63,2	26,3	7,9	2,6

No.	Pernyataan	Sangat Lengkap (%)	Lengkap (%)	Kurang Lengkap (%)	Tidak Lengkap (%)
1	Seberapa lengkap informasi yang tersedia dalam aplikasi Mobil Scale?	60,5	34,2	2,6	2,6

No.	Pernyataan	Sangat lengkap (%)	lengkap (%)	Kurang lengkap (%)	Tidak lengkap (%)
1	Seberapa lengkap fitur-fitur yang tersedia dalam aplikasi Mobile scale?	70,3	24,5	4,5	0,7

No.	Pernyataan	Sangat cepat (%)	Cepat (%)	Kurang Cepat (%)	Tidak Cepat (%)
1	Seberapa cepat aplikasi Mobile scale memuat data?	72,1	24,5	3,2	0,2

CONCLUSION

1. Obstacle

There were several obstacles that we encountered when working on this PBL project,including:

a) At the start of the we experienced problems with a lack of tools such as breadboards and sensor support equipment.

b) Arduino cannot be connected to the laptop.

c) Create coding for scale applications.

2. Learning Process

The process for working on this PBL is as follows:

a) In the first week we were still learning the tools and their functions.

b) There are several logo image references that we took from the internet.

c) Solution to the Arduino problem that is not connected, we looked for information on YouTube, from the same PBL team and used reason.

APPENDIX I – LOGBOOK

List Logbook Tim - TRM-4C01

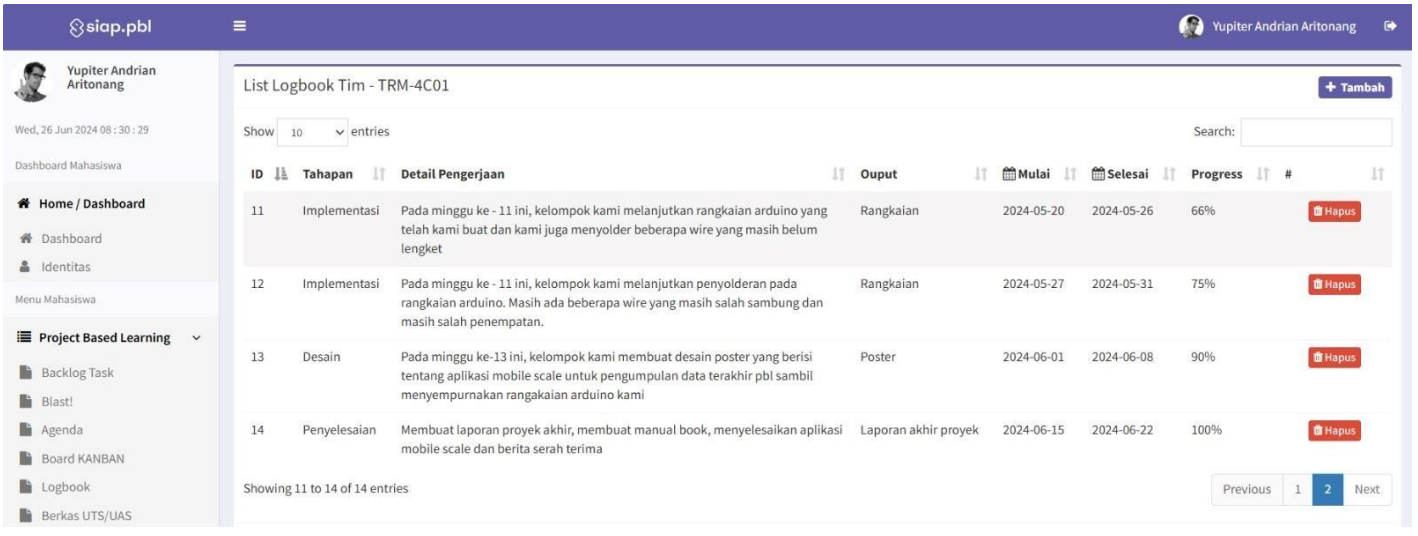
+ Tambah

Show 10 entries Search:

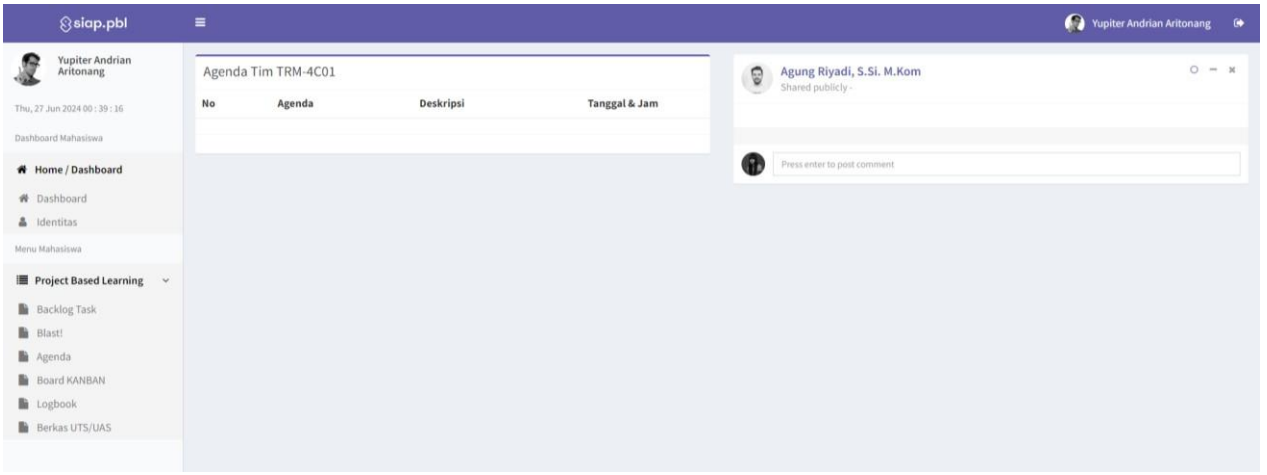
ID	Tahapan	Detail Pengerjaan	Ouput	Mulai	Selesai	Progress	#
1	Planning	Pada minggu pertama kami melakukan meeting dengan manager proyek dari aplikasi mobile scale, dan kami membahasa tentang alat-alat dan kebutuhan yang di perlukan selama proses pembuatan aplikasi mobile sclae	-	2024-02-15	2024-02-20	8%	Hapus
2	Analysis	Kami melakukan pengecekan harga dari barang barang yang ingin kami beli untuk membuat aplikasi mobile scale di online shop maupun offline store	-	2024-02-21	2024-02-27	15%	Hapus
3	planning	diminggu ketiga ini kami lebih fokus dalam membuat UI yang sangat berguna untuk pembuatan aplikasi mobile scale ini. Disini kami fokus merancang dan membuat sistem UI ini	-	2024-02-28	2024-03-03	20%	Hapus
4	implementasi	pada minggu ke-empat ini, kelompok kami melakukan coding menggunakan flutter dan memulai proses debugging untuk mengidentifikasi penyebab error pada beberapa fitur dan komponen tertentu	-	2024-03-04	2024-03-10	28%	Hapus
5	implementasi	pada minggu ke-lima ini, kelompok kami melakukan percobaan sensor pada arduino yang sudah di rancang. kami melakukan pengetesan guna untuk mengetahui apakah arduino kami berfungsi dengan baik atau tidak	-	2024-11-03	2024-03-17	35%	Hapus
6	Implementasi	pada minggu ke-enam ini, kelompok kami membuat mekanis dudukan untuk load cell dan juga membuat penampang untuk benda yang akan diukur beratnya	-	2024-03-18	2024-03-24	43%	Hapus
7	design	pada minggu ke-tujuh ini, kelompok kami sudah fokus untuk membuat dan menyiapkan materi untuk melakukan presentasi yang berisi semua yang sudah kami lakukan selama pbl	-	2024-03-25	2024-03-27	51%	Hapus
8	Implementasi	Pada minggu ke - 8 ini, kelompok kami membuat codingan dan menambahkan fitur-fitur pada aplikasi mobile scale yang berfungsi untuk menjalankan aplikasi mobile scale dengan baik. Tapi disini kelompok kami tidak menyelesaikan codingan ini sepenuhnya	56	2024-03-28	2024-04-03	56%	Hapus
9	Implementasi	Pada minggu ke-9 ini, kelompok kami Melanjutkan codingan yang sudah kelompok kami buat sebelumnya dan menyempurnakan codingan	60	2024-04-08	2024-04-13	60%	Hapus
10	Implementasi	Pada minggu ke - 10 ini, kelompok kami Merangkai alat-alat dan bahan pada rangkaian arduino yang berfungsi untuk menjalankan aplikasi mobile scale	Rangkaian	2024-05-14	2024-05-19	64%	Hapus

Showing 1 to 10 of 14 entries

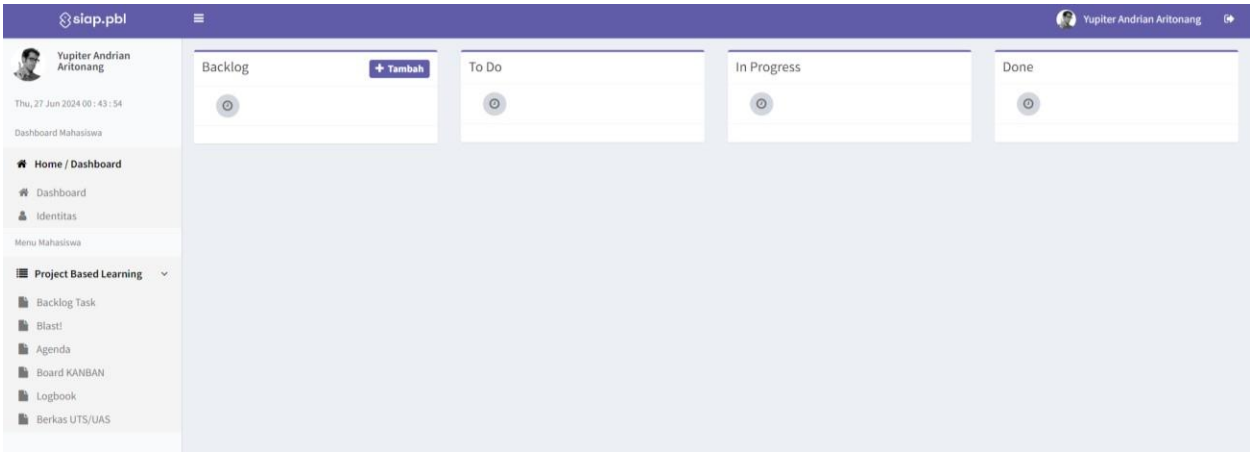
Previous 1 2 Next



APPENDIX II – TEAM SCHEDULE



APPENDIX III – PROJECT BOARD



APPENDIX IV – PRESENTATION SLIDES

Put your presentation slides in this section

MANPRO

Agung Riyadi S.Si., M.Kom

OUR TEAM

Rona Martha
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01

PROJECT DESCRIPTION

The Mobile Scale application is a program installed on a smartphone or tablet to weigh various objects, such as fruit, spices, and others, with a maximum weight of 10 kg.

This app allows users to easily and accurately measure the weight of objects. Users can also convert weight units between grams, kilograms, and ounces, as well as calculate the total weight of multiple objects individually

The Mobile Scale app offers a variety of benefits, including ease of use, portability, accuracy, time-saving, and cost-saving. The app is ideal for use in the kitchen, store, or anywhere you need to weigh objects.

LEARN MORE

02

CONTRIBUTION TO THE COURSE

SYSTEM IOT — Help us finishing hardware of our project.

GENERAL ENGLISH — Help us in acquiring vocabulary and in speaking.

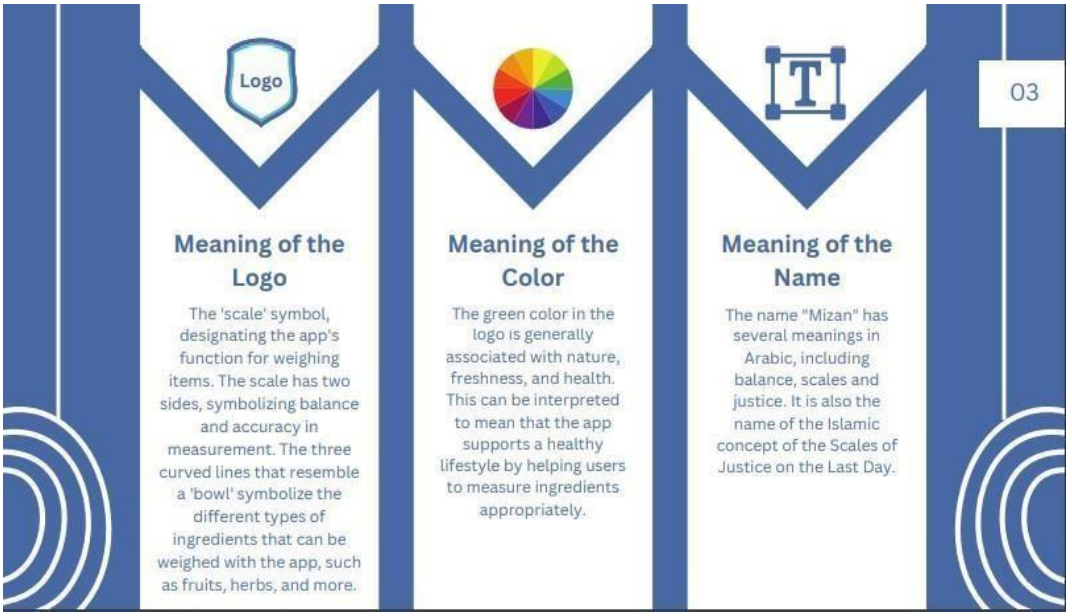
ADMINISTRATION SYSTEM COMPUTER — Tell the command work function in ubuntu.

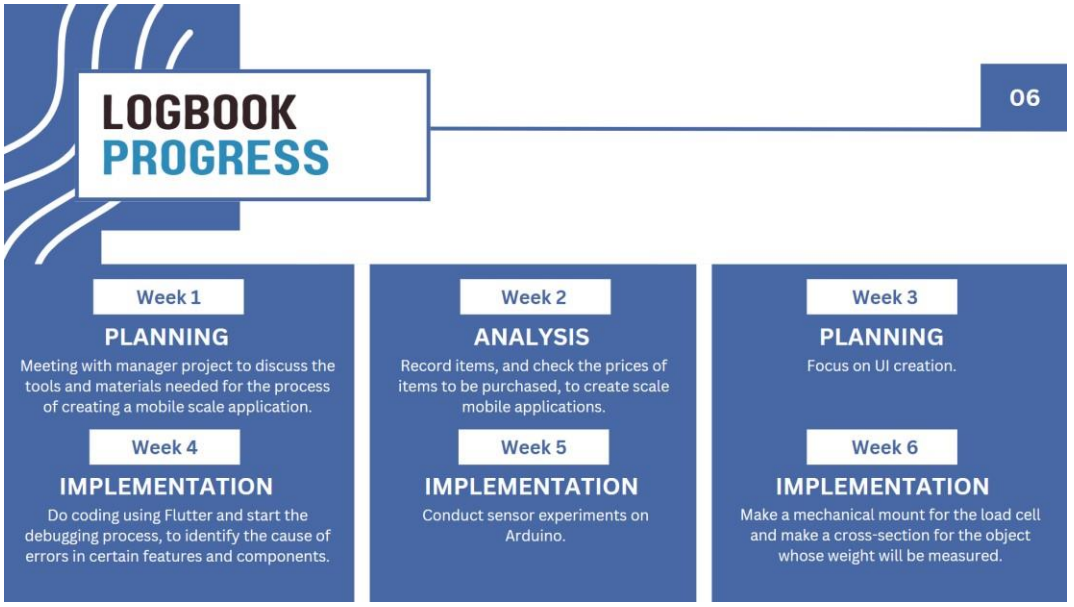
STATISTIC — helping them to develop a better understanding of data, analyze problems, and make decisions supported by statistical evidence.

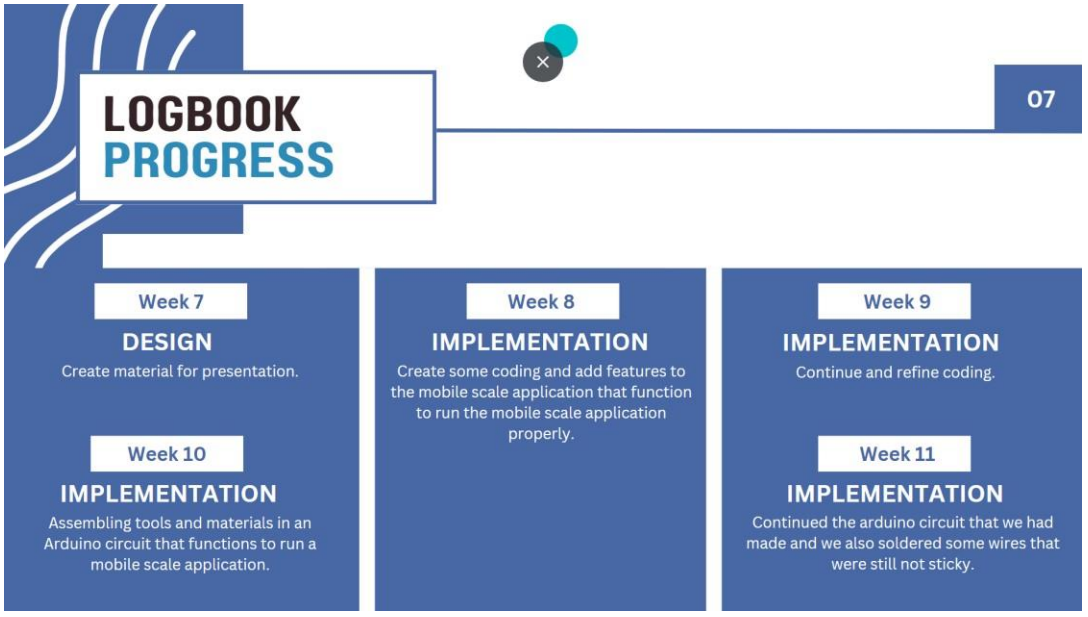
OBJECT PROGRAMING — provides students with the necessary foundation to develop effective software solutions and understand the concepts underlying modern software development.

PKN — helps students understand the social context, develop critical awareness, understand government and legal systems, develop participation skills, and strengthen their social responsibility as responsible citizens.

MOBILE DEVICE PROGRAMMING — provides students with the skills and knowledge necessary to develop mobile application solutions that are innovative, relevant, and effective in solving specific problems or case studies.


Logo
03
Meaning of the Logo
The 'scale' symbol, designating the app's function for weighing items. The scale has two sides, symbolizing balance and accuracy in measurement. The three curved lines that resemble a 'bowl' symbolize the different types of ingredients that can be weighed with the app, such as fruits, herbs, and more.
Meaning of the Color
The green color in the logo is generally associated with nature, freshness, and health. This can be interpreted to mean that the app supports a healthy lifestyle by helping users to measure ingredients appropriately.
Meaning of the Name
The name "Mizan" has several meanings in Arabic, including balance, scales and justice. It is also the name of the Islamic concept of the Scales of Justice on the Last Day.


LOGBOOK
PROGRESS
06
Week 1
PLANNING
Meeting with manager project to discuss the tools and materials needed for the process of creating a mobile scale application.
Week 2
ANALYSIS
Record items, and check the prices of items to be purchased, to create scale mobile applications.
Week 3
PLANNING
Focus on UI creation.
Week 4
IMPLEMENTATION
Do coding using Flutter and start the debugging process, to identify the cause of errors in certain features and components.
Week 5
IMPLEMENTATION
Conduct sensor experiments on Arduino.
Week 6
IMPLEMENTATION
Make a mechanical mount for the load cell and make a cross-section for the object whose weight will be measured.


LOGBOOK
PROGRESS
07
Week 7
DESIGN
Create material for presentation.
Week 8
IMPLEMENTATION
Create some coding and add features to the mobile scale application that function to run the mobile scale application properly.
Week 9
IMPLEMENTATION
Continue and refine coding.
Week 10
IMPLEMENTATION
Assembling tools and materials in an Arduino circuit that functions to run a mobile scale application.
Week 11
IMPLEMENTATION
Continued the arduino circuit that we had made and we also soldered some wires that were still not sticky.

08

LOGBOOK PROGRESS

Week 12

IMPLEMENTATION

Continue soldering the arduino circuit. There are still some wires that are still wrongly connected and still misplaced.

Week 13

DESIGN

Create a poster design that contains and enhances our arduino array.

Week 14

IMPLEMENTATION

Make a final project report, make a manual book, complete the mobile scale application and handover news

09

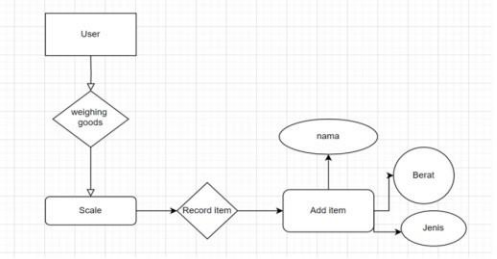
PROJECT DETAILS

10

USE CASE AND ERD DIAGRAM

USECASE

ER DIAGRAM



FLUTTER CODING

11

```dart
import 'package:flutter/material.dart';
Run | Debug | Profile
void main() => runApp(MyApp());
class MyApp extends StatelessWidget {
  @override
  Widget build(BuildContext context) {
    return MaterialApp(
      home: Scaffold(
        body: SafeArea(
          child: Padding(
            padding: const EdgeInsets.all(20.0),
            child: Column(
              children: [
                Text('Sign In', style: TextStyle(fontSize: 24)),
                Image.asset('assets/images/SCALE.png'),
                TextField(
                  decoration:
                      InputDecoration(labelText: 'Email atau Nomor Telepon'),
                ), // TextField
                TextField(
                  obscureText: true,
                  decoration: InputDecoration(labelText: 'Kata Sandi'),
                ), // TextField
```

```dart
                ElevatedButton(onPressed: () {}, child: Text('Lanjutkan')),
                TextButton(onPressed: () {}, child: Text('Lupa Kata Sandi?')),
                Row(children: [
                  ElevatedButton.icon(
                      onPressed: () {},
                      icon: Icon(Icons.apple),
                      label: Text("Masuk dengan Apple")), // ElevatedButton.icon
                  ElevatedButton.icon(
                      onPressed: () {},
                      icon: Icon(Icons.mail),
                      label: Text("Masuk dengan Google")) // ElevatedButton.icon
                ]), // Row
                Row(children: [
                  Text("Baru di Mizan?"),
                  TextButton(onPressed: () {}, child: Text("Daftar"))
                ]) // Row
              ],
            ), // Column
          ), // Padding
        ), // SafeArea
```

DESIGN UI/UX HOME SCREEN

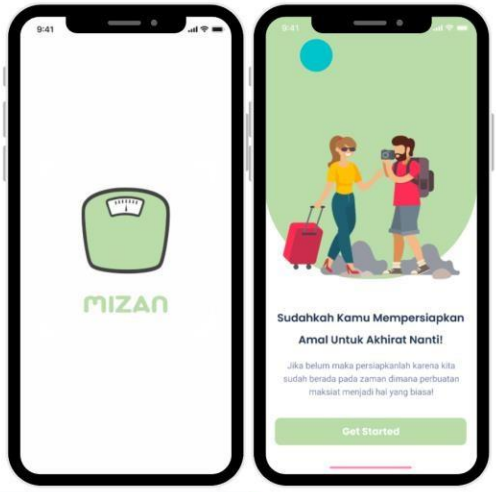
12

01 - Homepage

This is our homepage and bring up our scale app logo and our name logo is 'Mizan'.

02 - Get Started

When click 'get started', we directly move to login page.



DESIGN UI/UX DASHBOARD

13

03 - Dashboard

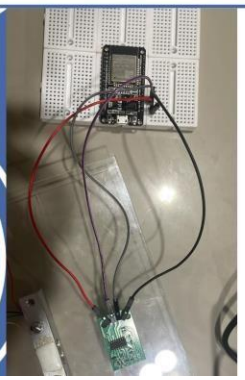
In dashboard page, there is measuring scales for measuring fruit and others. Then, there is the add weight data icon on fruits and others

04 - User Setting

Then, in the user settings menu, there is a lot of information for account data and there is an exit from the application.

14

IOT DEVICE



Iot mobile scale is an internet-connected digital scale equipped with a mobile app. It can measure the weight of objects and send the data to the mobile app for further analysis and storage.

15

EACH MEMBER'S CONTRIBUTION

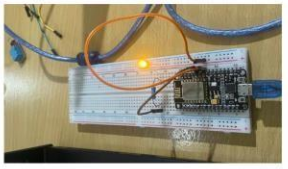
Rona Martha	Sofyan Fahro	Yupiter Andrian	Hendra Riyanto	Cindy Putri
Programming IoT	UI/UX Design	Leader/Flutter	Flutter	UI/UX Design

16

PROBLEMS & SOLUTIONS

PROBLEMS	SOLUTIONS
In our team, all are workers. This condition, makes it difficult for us to divide work time with study time.	First understand the obstacles that occur in the project process.
When there is a team meeting, sometimes one of us is unable to attend which results in communication constraints.	Doing time management as well as possible & Maintain communication.

WORK PROGRESS DOCUMENTATION



THANK YOU

APPENDIX V

You can add appendices as needed such as :

1. Link of product :
2. Link of presentation : https://www.youtube.com/watch?v=huKE3PTEpzs
3. Link of demo video/teaser : https://drive.google.com/file/d/1UOUMRW-28MNt99BTP7LqeZamv56GkQDU/view?usp=drivesdk
4. Link of scientific poster : https://drive.google.com/file/d/1LCBXWneEsBq1hGYDrOvuLF_fB88YyIFH/view?usp=drive_link
5. Link of Intellectual Property Rights Document :
6. Link of handover document scan :
7. Link Figma : https://www.figma.com/file/zeYcHwhRguBBLCwvcX8Rus/Untitled?type=design&node-id=0%3A1&mode=design&t=Wlgp4sUQUdyYaXll-1
8. Link of contest proposal (optional) :
9. Link PPT : https://drive.google.com/file/d/1l6BbRZDIMZR2EZs9hIul9_krCda8BXHm/view?usp=drive_link
10. Link Logbook :
11. Link Manual Book : https://drive.google.com/file/d/1UZG3pFBaqPyAtUk20PiwbzIBsol25Lf0/view?usp=drive_link

Make sure the link provided is set up to be accessible to the **public**

trm.polibatam

https://if.polibatam.ac.id/teknologi-rekayasa-multimedia/index.html

kps-trm@polibatam.ac.id