PROJECT-BASED LEARNING REPORT

TEKNOLOGI REKAYASA MULTIMEDIA
POLITEKNIK NEGERI BATAM
2024

GROUP MEMBER

1. 4312211081 – Christia Insela Sebayang
2. 4312211070 – Jasheline Lie
3. 4312211075 – Salva Nabila
4. 4312211074 – Muhammmad Fiqih
5. 4312211077 - Petra Ivan

PROJECT IDENTITY

Project Title	: Application Mobile Baby Monitoring
Project Owner	: Sandi Prasetyaningsih.SST.,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, ……... ……..2024

Project Manager

Agung Riyadi S.Si.M.Kom

NIK. ……..

LIST OF CONTENT

1. PROJECT-BASED LEARNING PRODUCT

1.1 Product Description

Mobile Baby Monitoring System application is an integration between mobile application and IoT System. This project aims to provide a practical solution for parents and caregivers to monitor their baby's health and well-being more efficiently through mobile devices. Important Features: This project is to reduce the pressure of parents in monitoring infant children. With this app, parents and caregivers can provide the best care for babies more easily and efficiently.

1.2 Product Design

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

1. General system description.

   Mobile Baby Monitoring System application is an integration between mobile application and IoT System. The idea is a smart cradle system that will help parents monitor their babies remotely. The idea comes up with a crying detection mechanism, live video surveillance, cloud computing data and user interface in mobile or web version. Different sensors mounted on the cradle will check the humidity or temperature of the bed. Surveillance cameras will always transmit footage of the main IoT program. All data will be stored in the cloud. Based on the data, health algorithms will always check the baby's condition and warn the parents if an undesirable situation arises. Important Features: This project will reduce the pressure of parents in monitoring the baby child. This is a Raspberry Pi based project. The software language can be Python. Instant application notification system. Analysis of baby's voice and parents' alertness.

2. Functional system requirements.

   Design Overview:

   The Mobile Baby Monitoring System combines a mobile app with IoT technology to create a smart cradle system that assists parents in remotely monitoring their babies. This system includes a crying detection mechanism, live video surveillance, cloud data storage, and a user-friendly interface available in both mobile and web versions. Sensors attached to the cradle monitor bed humidity and temperature, while surveillance cameras continuously stream video to the main IoT program. All

collected data is stored in the cloud and analyzed using health algorithms that alert parents to any potential issues.

Key Features:

Reduced Parental Stress: The system aims to minimize the pressure on parents by providing real-time updates and alerts about their baby's condition.

Raspberry Pi Integration: The project is based on Raspberry Pi technology, utilizing Python for its software development.

Instant Notifications: Parents receive immediate notifications about their baby's status.

Voice Analysis:

The system analyzes the baby's cries to determine their needs and alerts parents accordingly.

Functional System Requirements:

General System Description:

Smart cradle system for remote baby monitoring

Crying detection, live video surveillance, and cloud data storage

Mobile and web user interfaces

Sensors for bed humidity and temperature monitoring

Continuous video streaming and data analysis with health algorithms

Detailed System Features:

Instant notifications to the mobile app

Real-time voice analysis of baby's cries

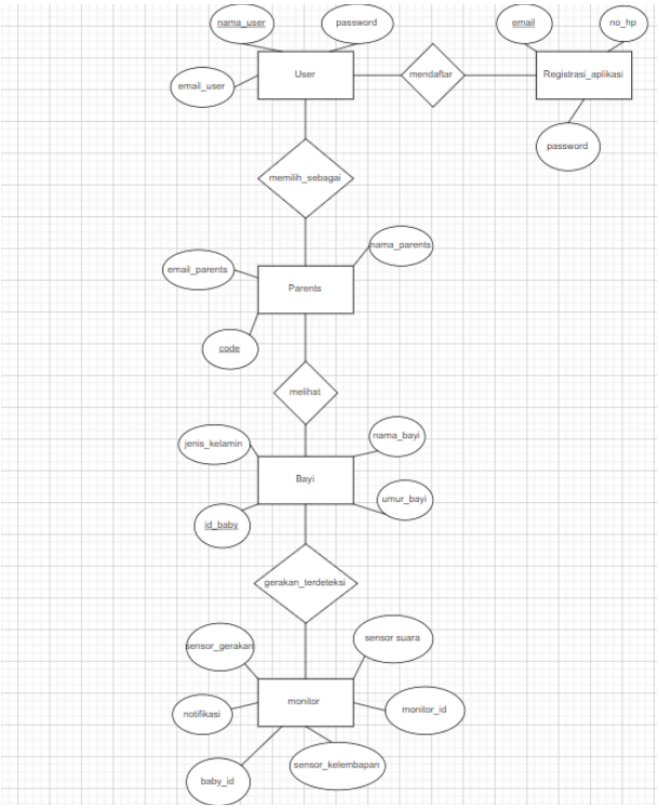
Continuous updates and alerts for parents

Efficient data storage and processing in the cloud

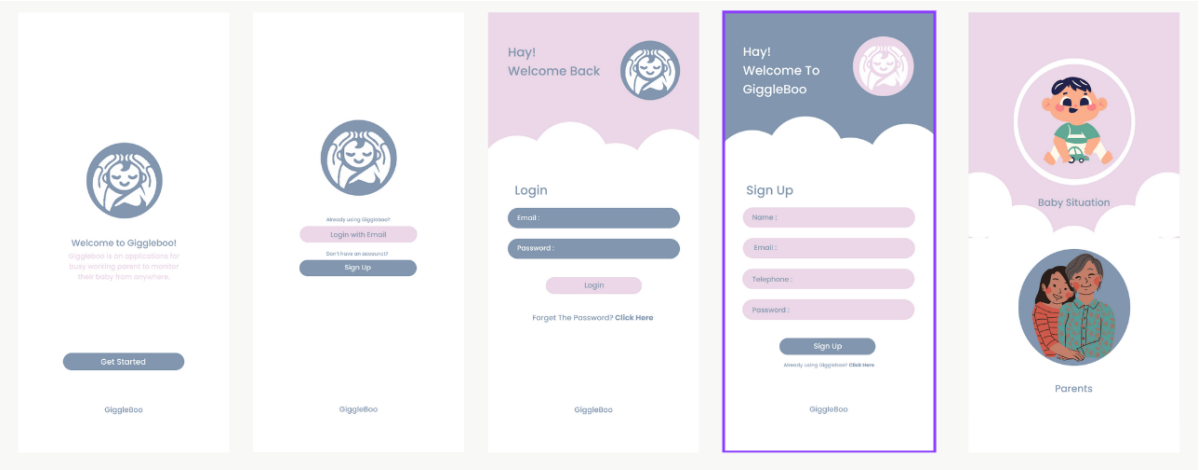
This comprehensive design ensures that the Mobile Baby Monitoring System provides an effective and practical solution for modern parenting needs.

3. Use case.

4. ER diagram.



5. Product interface/architecture design.



6. Programming language

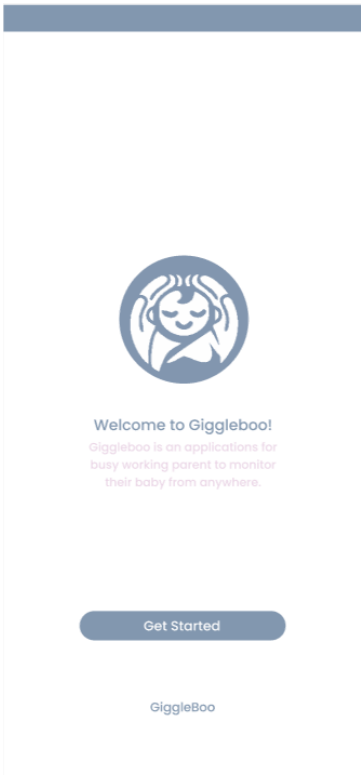
   Flutter, an open-source framework powered by the Dart programming language, revolutionizes cross-platform development by enabling developers to create stunning and dynamic user interfaces that seamlessly adapt across Android, iOS, web, and desktop platforms from a single codebase. With Dart's modern 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:

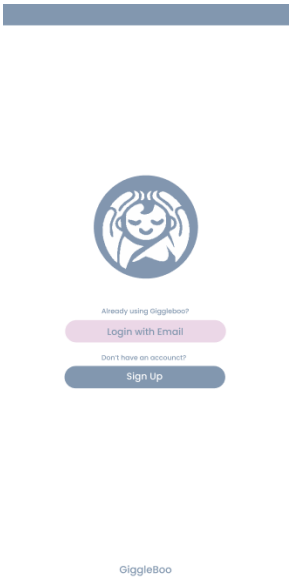
1. Implementation for user interface / product design.



1. INITIAL LOOK

welcome screen display menu on the baby monitoring application

Here users will be warmly welcomed and explained a little about the application



2. REGISTER

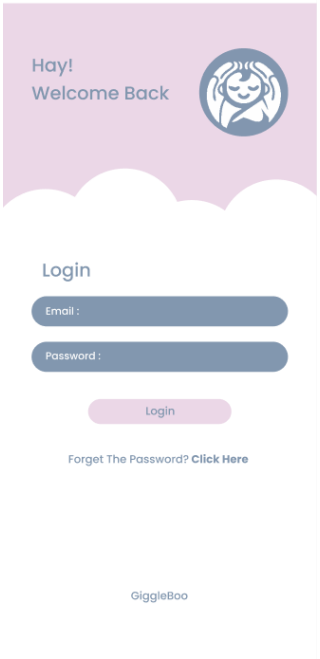
Account login registration display menu in the Baby Monitoring Application

To use the application, users must create an account first. The steps to create an account are as follows:

a. Go to the application registration page.

b. Click the "Sign Up" button to submit the form.

c. Fill out the registration form with the required information, such as name, email address and password.



3. LOGIN

The following is the page menu for logging in

After creating an account, users can log in to the app using the following steps:

a. Go to the application Login page.

b. Enter the email address and password used during registration.

c. Click the "Login" button to access the application dashboard.

4. HOME

This is the home display, there are device features for babies and devices for parents. The device for babies is a division for recording the baby while the parent's device is for monitoring

2. Product testing result.

number of respondents: 70						
Testing time: 10 February – 20 march						
Gender		Woman			Man	
		31			37	
code	statement	**SA (Strongly Agree)**	**A (Agree)**	**D (Doubt)**	**D (Disagree)**	**SD (Strongly Disagree)**
Usability						
K1	The application is very easy to use	70	-	-	-	-
K2	Dengan aplikasi ini saya dapat menghemat waktu saya	54	16	-	-	-
Ease of Use						
K1	This application minimizes work	45	20	5	-	-
K2	This application is easy to use	68	-	-	-	-
K3	The application does not require account registration	-	-	36	34	-
Customization						
K1	The application can only be accessed on Android Mobile	70	-	-	-	-
K2	The application rarely has errors	56	3	11	-	-
Satisfaction						
K1	The features contained in the application make it very easy for me	70	-	-	-	-

Graphic Design						
K1	The application design is very eye-catching	70	-	-	-	-
K2	The icons in the application are easy to understand	70	-	-	-	-
Content						
K1	The buttons on the application are easy to understand	70	-	-	-	-
K2	The colors in the application give a cheerful and childlike impression	41	29	-	-	-
Compatibility						
K1	This application can be used on various types of Android	70	-	-	-	-
loading Time						
K1	The icons in the application are very responsive	51	19	-	-	-
K2	When switching to a new page there are no obstacles	48	19	3	-	-
Accesbility						
K1	The application is very easy to access	70	-	-	-	-

3.

Explanation on the use of captions

Examples of figure and table presentation can be seen in Figure 1 and Table 1. The name of the figure is placed **below the figure**, while the name of the table is **above the table**. The source of the image is placed below it according to the reference. If both are your assets/files (e.g. product results or process screenshots), then the source can be made with the word "doc" or "personal document". The font size is 11pt. These figures and tables are sorted in the order they appear throughout the report.

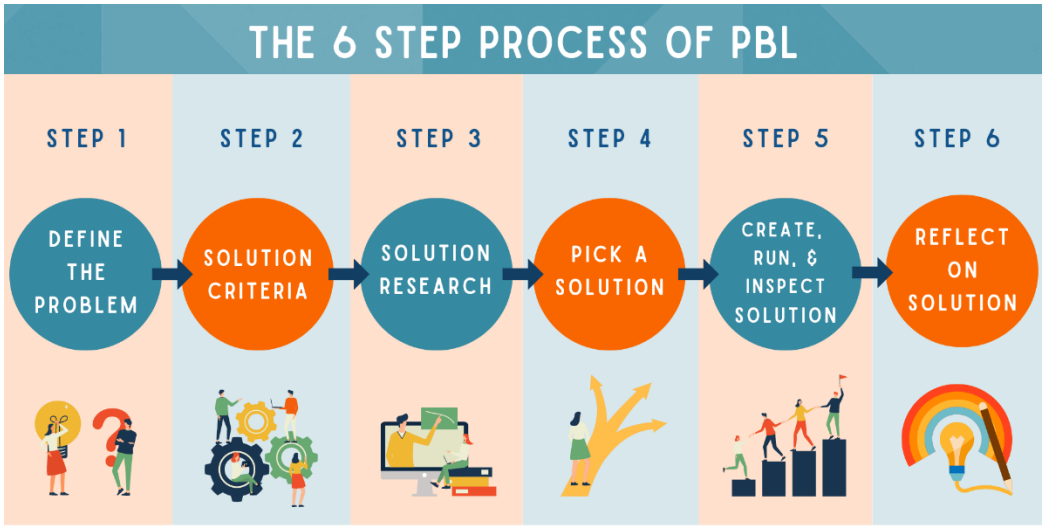


Figure 1 Six Steps of PBL Process

Source: https://www.magnifylearningin.org/

3. CONCLUSION

2.1 Obstacle

1. Experienced a little problem when running the application simulation
2. Requires time and a long work process to understand more deeply
3. Problems in getting work space and appointments between PBL groups

2.2 Learning Process

- System Administration

  Install and configure the Linux server operating system. Explain the Linux server operating system and its distribution and package repository.

- Statistics

  Understand the basic concepts of data collection, probability and sampling distribution. Plan data collection activities according to research objectives. Explain data presentation techniques

- Object Programming

  Learn about the basic concepts of OOP, such as class, object, inheritance, polymorphism, etc. and also learn how to apply these concepts in making applications using certain programming languages.

- Mobile Programming

  Learn mobile programming concepts, with real-life examples. Create user interfaces and use data storage

- Multimedia IoT System

  Learn about assembling and designing tools made using arduino and blynk cloud programming.

- Civic Education

  Enhance students' understanding of the concepts of citizenship, democracy, human rights, political systems and social issues relevant to their country context.

- English

  Explain and use English orally and in writing various patterns and topics in English (language works), vocabulary or language expressions appropriately.

APPENDIX I – LOGBOOK

ID	Tahapan	Detail Pengerjaan	Ouput	Mulai	Selesai	Progress	#
1	Planning	Pertemuan bersama manager proyek membahas alat dan bahasa yang dibutuhkan dalam proses membuat aplikasi mobile baby monitoring	Excel link alat dan bahan	2024-02-12	2024-02-17	5%	Hapus
2	Planning	Mencatat Rencana Pelaksanaan Proyek (RPP) Seperti biaya alat dan bahan dan estimasi pekerjaan pada proses membuat aplikasi mobile baby monitoring	Excel membuat RPP	2024-02-19	2024-02-24	10%	Hapus
3	Analisis	Diskusi bersama manager proyek dalam melakukan percobaan alat dan bahan yaitu percobaan Aurdino pada proyek aplikasi mobile baby monitoring	Eksperimen Aurdino	2024-02-26	2024-03-02	15%	Hapus
4	Desain	Membuat desain ui menggunakan figma yang berisi login, registrasi dan adanya penggunaan ortu/pengasuh dan baby	Desain ui	2024-03-04	2024-03-09	25%	Hapus
5	Implementasi	Melakukan codingan menggunakan flutter dalam membuat desain berbentuk codingan pada proses pembuatan aplikasi baby monitoring	Flutter baby monitoring	2024-03-12	2024-03-16	30%	Hapus
6	Implementasi	Melanjutkan codingan menggunakan flutter dan menemukan eror dan solusi dalam proses pembuatan aplikasi mobile baby monitoring	Flutter baby monitoring	2024-03-18	2024-03-23	40%	Hapus
7	Membuat presentasi	Membuat presentasi Inggris tentang aplikasi baby monitoring, yang berisi deksripsi, documentasi, dan outputnya	Ppt Inggris baby monitoring	2024-03-25	2024-03-30	45%	Hapus
8	Implementasi	Melanjutkan codingan menggunakan flutter dan membuat fitur-fitur aplikasi baby monitor dalam bentuk codingan	Flutter baby monitoring	2024-05-06	2024-05-11	55%	Hapus
9	Implementasi	Merangkai alat-alat dan bahan (iot) untuk menjalankan proyek pada aplikasi baby monitoring (memfokuskan pada 3 sensor yang di gunakan)	Rangkai iot	2024-05-13	2024-05-18	60%	Hapus
10	Implementasi	Melanjutkan rangkai iot pada proyek aplikasi baby monitoring dan mengecek ke 3 sensor, berfungsi atau tidak	Rangkaian iot	2024-05-20	2024-05-25	70%	Hapus
11	Implementasi	Menyambungkan iot ke database codingan dan mencoba semua alat-alat apakah berfungsi dengan baik atau tidak	Database dan rangkaian iot	2024-05-27	2024-06-01	75%	Hapus
12	Implementasi	Memfokuskan penyambungan firebase ke flutter, agar dapat menampilkan tampilan ke dalam android dan memperbaiki eror pada flutter	Flutter baby monitoring	2024-06-03	2024-06-08	80%	Hapus
13	Desain	Membuat desain poster yang berisi tentang aplikasi baby monitoring untuk pengumpulan data terakhir pbl	Poster	2024-06-10	2024-06-15	90%	Hapus
14	Menyelesaikan berkas-berkas pengumpulan akhir	Membuat laporan proyek terakhir, membuat manual book, menyelesaikan aplikasi baby monitoring dan berita serah terima	Laporan proyek, manual book, berita serah terim dan aplikasi baby monitoring	2024-06-17	2024-06-22	100%	Hapus

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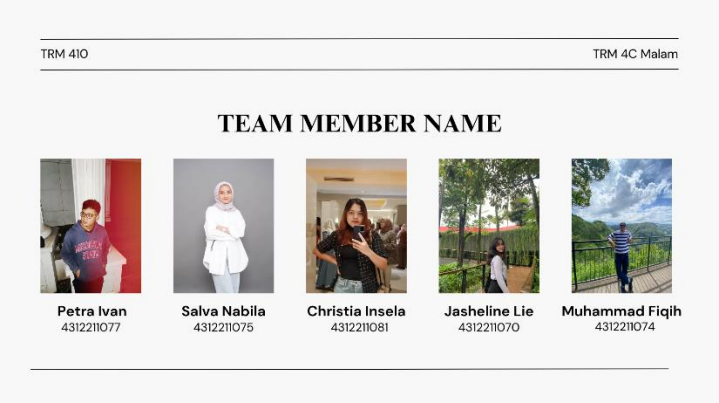
APPENDIX IV – PRESENTATION SLIDES

Put your presentation slides in this section



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CONTRIBUTION OF PBL COURSE ENGAGEMENT

System Administration

Install and configure the Linux server operating system. Explain the Linux server operating system and its distribution and package repository.

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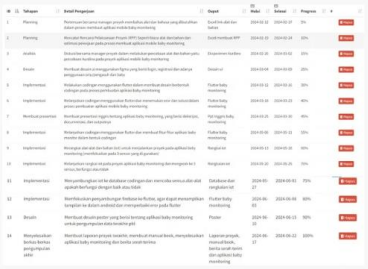
LOGBOOK



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WORK PROGRESS DOCUMENTATION

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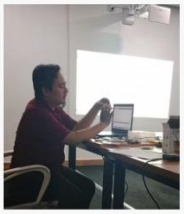
MEETING WITH PROJECT MANAGER



We discussed with the project manager about the project we were going to make. The project manager provides direction to our team, such as discussing the tools and materials that will be used and the users of the tools and materials on the project that will be created.

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BRAINSTORMING

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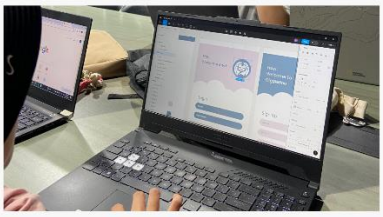
FIGMA AND USE CASE



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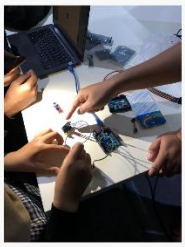
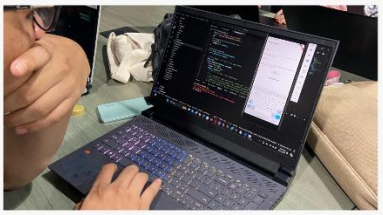
PROGRAMING





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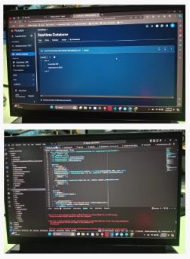
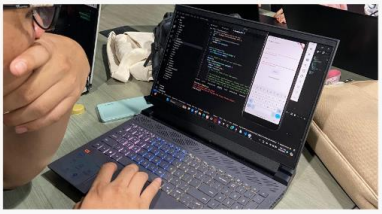
PROGRAMING





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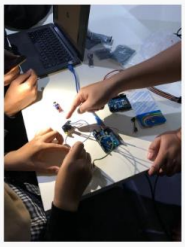

IOT

Discover the future of childcare with IoT-powered baby monitoring. Our advanced system integrates smart sensors and real-time connectivity to keep you informed about your baby's well-being, no matter where you are.

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EACH MEMBER'S CONTRIBUTION

Petra
Flutter

Salva
UI/UX Design

Christia
Leader (UI/UX Design)

Jasheline
UI/UX Design

Fiqih
Flutter

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OUTPUTS RESULTING FROM THE PROJECT

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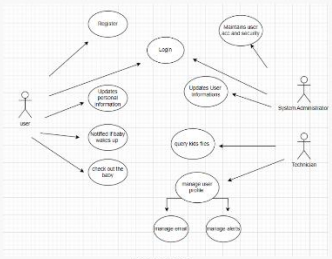
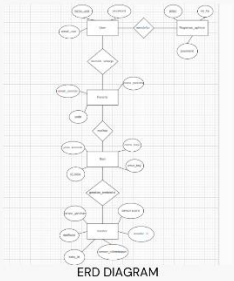
USE CASE AND ERD DIAGRAM



USE CASE



ERD DIAGRAM

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FIGMA

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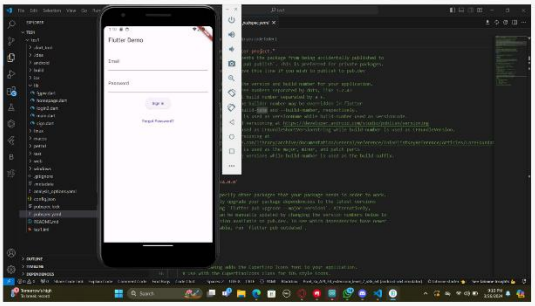

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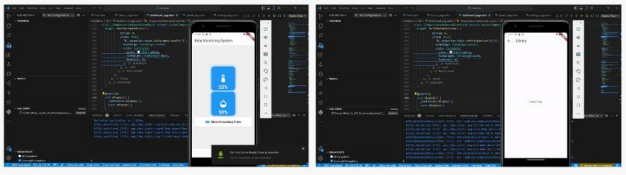

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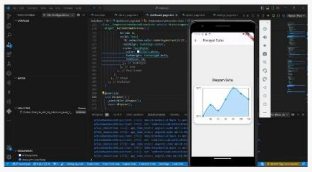
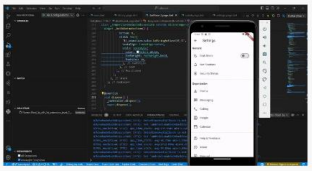

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IOT

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PROBLEMS SOLUTIONS

 # 1.
We Difficult to find tools and materials for the project of making a baby monitoring mobile application

#2.
We found problems creating Flutter programs and other programming languages

 # 1.
The project manager revises the place of tools and materials

 # 2.
We learned from Manpro and related websites related to our problem

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THANK YOU

APPENDIX … – ….

You can add appendices as needed such as:

1. Link of product :
2. Link of presentation
3. Link of demo video /teaser
4. Link of scientific poster
5. Link of Intellectual Property Rights Document
6. Link of handover document scan
7. Link of contest proposal (optional)

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