

Project Plan for Bangkit 2023 Product-based Capstone

Team ID : C23-PR586

Active Team Members :

1. (ML) M151DSY1764 – Imelda Purba – Universitas Brawijaya
2. (ML) M168DSY2588 – Nur Alifia Riany – Universitas Esa Unggul
3. (ML) M193DKX4694 – Azis Yulianas – UIN Maulana Malik Ibrahim Malang
4. (CC) C163DSY2714 – Yuha Aulia Nisa – Universitas Dian Nuswantoro
5. (CC) C163DSY3136 – Ervira Aliya Nabila – Universitas Dian Nuswantoro
6. (MD) A223DKY4116 – Eniria Gulo – Universitas Kristen Immanuel

Inactive Team Members : -

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Final Selected Themes:

Tourism, Cultural, and Hospitality ▾

Title of the Project:

TRAFA (Traditional Fabric)

Executive Summary/Abstract:

Indonesia has a very fascinating variety of cultures, one of which is the diversity of traditional fabrics. Each region has traditional fabrics that are used for customary purposes and contain motifs, patterns, and colors with deep meanings, philosophies, and stories that have been passed down from generation to generation. Many people are still unaware of the meaning and philosophy of each traditional fabric. If this trend continues, the community will lose their identity and the value of cultural arts in every region in Indonesia will decrease. With advances in technology, knowledge of traditional fabric culture should increase so that people can love and be proud of this culture, and the preservation of this culture can continue for the next generation. We propose the idea of an application designed using ML, which can help people detect types of traditional fabrics and provide relevant information regarding the description of traditional fabrics. This can foster a sense of love for the cultural heritage that we have, as our tagline says: “aku cinta kain kita”.

How did your team come up with this project?

Based on the applications that we have tried on the market, there are still many other applications that do not yet provide cloth detection as a whole, only batik is predicted. Therefore we had the idea to make an application about a more interactive and communicative traditional cloth detector that can detect cloth using ML to display information on the accuracy of the cloth according to the application. In addition, we also designed this application with more informative features, and the accuracy for its detection can be used to analyze the types of traditional fabrics throughout Indonesia as a whole to meet the needs and expectations of users.

Project Scope & Deliverables:

This project will focus on collecting information about traditional fabrics, including various motifs found in Indonesia, and creating a complete database that is easily accessible to users. The application will be equipped with a search feature using image detection to make it easier for users to find fabric patterns, as well as information and descriptions about these fabrics. Additionally, users can add selected fabrics to a favorites list, and there is a search history storage feature that makes it easy for users to review previous searches.

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Week 1	<ul style="list-style-type: none"> • The dataset is in the form of traditional cloth images from various regions in Indonesia • CSV consisting of fabric descriptions and details extracted from the data set • Architectural Diagrams • UI/UX Mockups
Week 2	<ul style="list-style-type: none"> • Authentication System with Firebase • Database APIs • Frontend development: Home Screen, Search Screen, Details Screen, Favorites Screen • Backend development: Fabric search and filter algorithms • Train ML models to classify and identify batik motifs
Week 3	<ul style="list-style-type: none"> • Integration of frontend and backend components • Integration of Camera features with ML models
Week 4	<ul style="list-style-type: none"> • Integration of ML models with Camera features and apps • Development of User Profile screen and User Management System • Fabric search and screening testing and debugging
Week 5	<ul style="list-style-type: none"> • Test and debug the entire application • Creating Presentation Slides • Video Demo Application • Finish MVP

Project Schedule:

Capstone Project Timeline																														
PROJECT TITLE: MSAI (Medication Admin)										TEAM ID: C22-P000																				
TEAM LEAD: Imelda Pute																														
WKS	TASK TITLE	TASK OWNER	START DATE	DUE DATE	DURATION (DAYS)	TIME LEFT	TASK COMPLETE %	PRE-ALIGN (STANDSTILL)							SETTING APPROVED PROJECT PLAN							CAPSTONE WORKING (MENTORING #1)								
								WEEK 0							WEEK 1							WEEK 2								
								M	TU	W	TH	F	SA	SU	M	TU	W	TH	F	SA	SU	M	TU	W	TH	F	SA	SU		
			MM/DD/YYYY	MM/DD/YYYY				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21		
0	Pre-Flight																													
	Briefstorm Idea	All Team	5/1/2023	5/5/2023	5	5	100%																							
1	Mobile Developer																													
1.1	Design UI (Figma)	Brinze Gule	5/1/2023	5/1/2023	5	18	0%																							
1.2	Implementing Design to System	Brinze Gule	5/22/2023	5/21/2023	9	28	0%																							
1.3	Implementing Application	Brinze Gule	6/1/2023	6/5/2023	5	22	0%																							
1.4	Manual Testing	Brinze Gule	6/7/2023	6/8/2023	1	26	0%																							
1.5	Continue Integration Deployment	Brinze Gule	6/9/2023	6/15/2023	6	01	0%																							
2	Machine Learning																													
2.1	Gathering Data	Imelda Pute	5/1/2023	5/8/2023	14	10	0%																							
2.2	Model Creation and Training	Asia Yuliana	5/16/2023	5/20/2023	14	28	0%																							
2.3	Write Model preparation	Asia Yuliana	5/31/2023	06/03/2023	3	29	0%																							
2.4	Integrate Model with Application	Nur Afifa Rany	6/4/2023	06/10/2023	6	26	0%																							
3	Cloud Computing																													
3.1	Design Architecture	Yulu Aulia Nisa	5/16/2023	5/19/2023	3	16	0%																							
3.2	Authentication System	Brinze Aljia Nabila	5/20/2023	5/23/2023	3	18	0%																							
3.3	Create Table & Database	Yulu Aulia Nisa	5/26/2023	5/30/2023	6	26	0%																							
3.4	Create Backend API & API Testing	Yulu Aulia Nisa	5/31/2023	6/5/2023	6	32	0%																							
3.5	Integration	Brinze Aljia Nabila	6/7/2023	6/10/2023	3	26	0%																							
4	Final Deliverables																													
4.1	App Integration	All Team Member	5/22/2023	6/8/2023	17	26	0%																							
4.2	App Final Adjustments & Finishing	Asia Yuliana	6/12/2023	6/16/2023	4	02	0%																							
4.3	Presentation Slides	Imelda Pute	6/12/2023	6/16/2023	4	02	0%																							
4.4	Record Presentation Video	Asia Yuliana	6/12/2023	6/16/2023	4	02	0%																							
4.5	Final Deadline	Imelda Pute	6/16/2023	6/16/2023	0	02	0%																							

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Here's our spreadsheet for the schedule : [Capstone Project Timeline](#)

Based on your team's knowledge, what tools/IDE/Library and resources that your team will use to solve the problem?

- Figma
- Android Studio
- Android Jetpack (Library)
- Postman
- TensorFlow Lite
- Github
- Google Colab
- Visual Studio Code
- Database
- Node.js
- GCP (Google Cloud Platform)

Based on your knowledge and explorations, what will your team need support for?

Qualified mentors to assist in guiding Mobile Development assignments

Based on your knowledge and explorations, tell us the Machine Learning Part of your Capstone!

First, we will collect data on traditional cloth images from throughout Indonesia and then clean the data as the next step. The image data we obtain will be categorized according to the type of fabric image. Our main goal in creating a high accuracy model is to minimize memory usage and prediction time for each image. To achieve this, we will take advantage of features from TensorFlow to support model development. Finally, we will prepare Tflite and apply the model to the application.

Based on your knowledge and explorations, tell us the Mobile Development Part of your capstone?

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Our team plans to develop a mobile app using the Kotlin programming language on Android Studio. We will use the libraries found in Android Jetpack and Retrofit to establish communication with the backend. and leveraging Figma to design application interfaces and user experiences.

Based on your knowledge and explorations, tell us the Cloud/Web/Frontend/Backend Part of your capstone?

In providing application infrastructure we use Google Cloud Platform for storage processes on Cloud Datastore, NodeJS to create Rest-API and App Engine for implementing Rest-API, Cloud Run to run containers, Cloud Functions to create trigger functions, and Cloud Monitoring for container monitoring

Based on your team's planning, is there any identifiable potential Risk or Issue related to your project?

1. Collection of relevant and sufficient datasets can be a problem in the development of traditional cloth detector applications. This can be caused by limited access to data or lack of availability of the required data. This problem can hinder application development because an insufficient dataset can affect the quality of the application and its performance. Therefore, the development team must have the right strategies and methods in collecting relevant and sufficient datasets to ensure the successful development of traditional cloth detector applications.
2. Limited human resources or technical expertise in the team to develop applications, especially for mobile development.
3. Users on Google Cloud Platform are too slow and too few credits are issued.

Any other notes/remarks we should consider on your team's application

This application is intended for everyone who wants to learn about the kinds of traditional fabrics that exist in Indonesia. The application development that we are likely to make in the future is the addition of sales features related to these traditional fabrics and the addition of more datasets regarding traditional fabric variations that we have not included in the application that will be made now.