



# Azatik

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## *Background*

Teenagers not aware  
of the batik pattern

Lack of information  
about batik pattern

The batik industry  
doesn't have a proper  
platform

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**we are going to make a platform that provides information on the various Indonesian batik patterns.**





## *Reason*

According to [akurat.co](https://akurat.co) the reason the younger generation's interest in batik is decreasing is because the motif is considered old and the price is expensive.

The younger generation are willing to buy sneakers and other expensive clothes, but they don't want to buy batik for the same price or even half the price. Because they considered the motif as old and uninteresting. The reason they are uninterested and unwilling to pay an expensive batik is because they don't understand the meaning of its motif.

So because of this we make an application that will help educated the younger generation on why is batik motif interesting, meaningful and are worth the price.





## *Existing Result*

The following example of similar project:



- Arutala is a technology-based social innovation project in the form of a digital marketplace that aims to bridge batik craftsmen in Giriloyo Village with potential buyers and collectors of written batik.

# *Implementation/improvement & reasoning*

## **Machine learning**

### **1. Tensorflow**

Tensorflow is a python open source library for numerical computation that helps in making machine learning model and developing neural networks faster and easier. In this app we use tensorflow especially keras in making layer for our model.

### **2. Flask API**

Flask is a web framework and a Python module that lets us develop our applications easily. In our app we used flask as the API to connect our model.

### **3. Transfer Learning InceptionV3**

InceptionV3 is a CNN (Convolutional Neural Network) to assist our model in image analysis. It is the third edition of Google's Inception Convolutional Neural Network, originally introduced during the ImageNet Recognition Challenge.



# *Implementation/improvement & reasoning*

## Cloud Computing

### 1. Google Cloud Platform

Google Cloud Platform, offered by Google, is a suite of cloud computing services that runs on the same infrastructure that Google uses internally for its end-user products

### 2. VM Instance

An instance is a **virtual machine (VM) hosted on Google's infrastructure**. We create an instance to run our application and used for deploy the docker container. We decide to use VM because it is easy to manage.

### 3. Docker

Docker is a set of platform as a service products that use OS-level virtualization to deliver software in packages called containers. The service has both free and premium tiers. The software that hosts the containers is called Docker Engine

# *Implementation/improvement & reasoning*

## **Mobile Development**

### **1. Retrofit API**

Retrofit is a type-safe REST client for Android, Java and Kotlin developed by Square. The library provides a powerful framework for authenticating and interacting with APIs and sending network requests with OkHttp.

### **2. MVVM Architecture**

Model – View – ViewModel (MVVM) is the industry-recognized software architecture pattern that overcomes all drawbacks of MVP and MVC design patterns.

### **3. CameraX**

CameraX is a Jetpack library, built to help make camera app development easier.



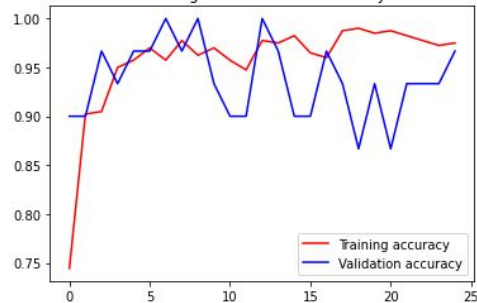
# Result

Epoch 25/25

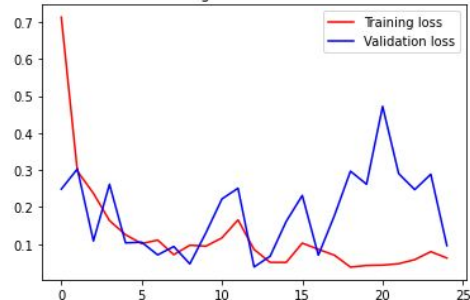
40/40 [=====] - 18s 454ms/step - loss: 0.0624 -

accuracy: 0.9749 - val\_loss: 0.0958 - val\_accuracy: 0.9667

Training and validation accuracy



Training and validation loss

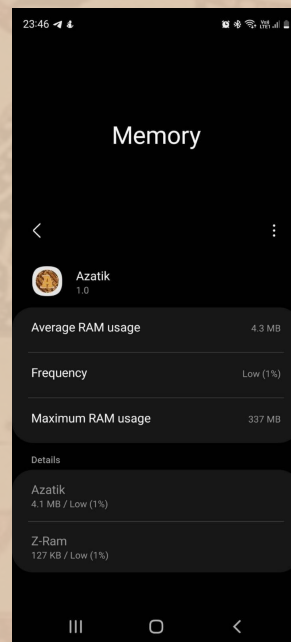
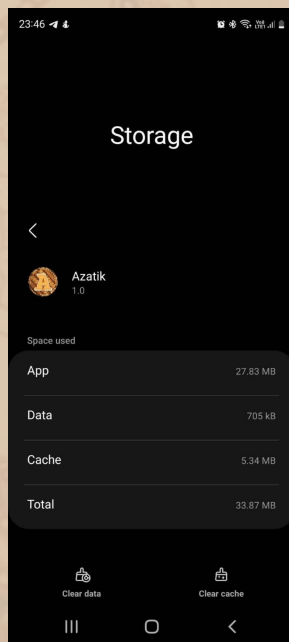


images(11).jpg  
[1.1313232e-03 3.3224811e-04 2.035  
Celup: 0.11%  
Cendrawasih: 0.03%  
Kawung: 0.20%  
Parang: 99.61%  
Tambal: 0.04%

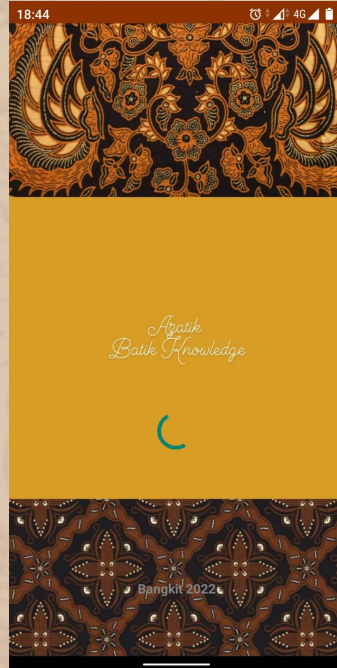




# *Statistic (Performance)*



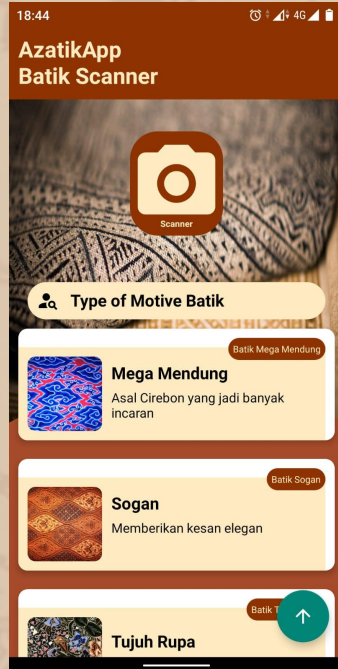
*User App*



*Splash Screen*

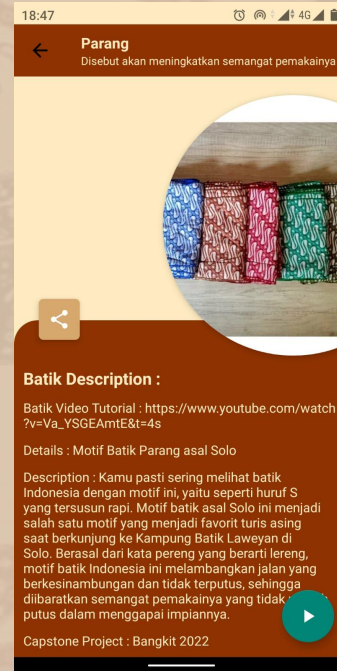
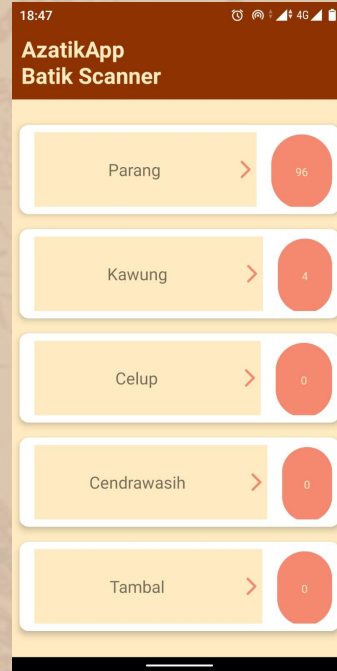
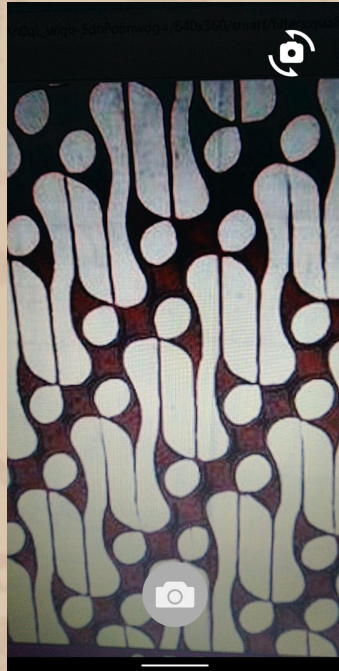


# User App



## Main Menu and Details

# User App



Scan



# Documentation

This following are steps of our team making Azatik App:

1. Creating image dataset from kaggle and google image
2. Splitting the dataset into : Training, Testing and Validation dataset
3. Augmented the image from the dataset
4. Checking if there is any unreadable data by Tensorflow in our dataset
5. Creating the model using tensorflow keras
6. Training The model
7. Checking the model by uploading image to detect
8. Save and Download the model to a **'pb'** format
9. Making API to connect the app to the model
10. Build docker in Virtual Machine on GCP with Ubuntu OS
11. Check if the API is working using docker
12. Deploy the model with working API into the docker
13. Build android application using MVVM architecture
14. Building a RESTful API (CRUD)
15. Integrate docker into the android application
16. Use github to collaborate

# *Plan a local deployment for the next six month*

## **Actual local (Indonesia) implementation of the project you've done - for the next six months:**

- Seminars and conferences
- Batik Exhibition

## **Budgeting:**

- Application Deployment
- Survey/Data Collection
- Marketing
- System Development

## **Timeline:**

- ❖ June: Trial and beta testing for user review
- ❖ July: Add more dataset to classify batik
- ❖ August: Make a survey related to UX Design and App Flow.
- ❖ september: Deploy our app to google playstore.
- ❖ December: Promote the app for indonesian users.

## **Personnel:**



### **Cloud Computing:**

- Muhammad Fadhilah Tanhir
- Farah Afiyah Fiqh



### **Mobile Development:**

- Rayhan Thufeil Addausi
- Abdullah Fadhlurrahman Mahfuzh



### **Machine Learning:**

- Alexei Andrei Basiman
- Zidane El Faruqi



# *Business → 5k Budgeting*

Category	Proportions	USD	IDR
Team Salary			
Team Salary	30%	\$ 1.500	Rp 21.000.000
Research / Operational			
Google Cloud Platform	10%	\$ 500	Rp 7.000.000
Buying/Renting Things	20%	\$ 1.000	Rp 14.000.000
Marketing	15%	\$ 750	Rp 10.500.000
Survey/ Data Collection	10%	\$ 500	Rp 7.000.000
Internet	3%	\$ 150	Rp 2.100.000
Transportation	2%	\$ 100	Rp 1.400.000
Legalities, Patent/Copyright, and Product Certification	10%	\$ 500	Rp 7.000.000
TOTAL	100%	\$ 5000	Rp 70.000.000

## *Business → 10k Budgeting*

Category	Proportions	USD	IDR
Total from 5k Budgeting	50%	\$ 5.000	Rp 70.000.000
Additional Budget for Team Salary	10%	\$ 1000	Rp 14.000.000
Additional Budget for Research/Operational	15%	\$ 1500	Rp 21.000.000
Additional Investation	5%	\$ 500	Rp 7.000.000
Additional Marketing	5%	\$ 500	Rp 7.000.000
Additional Cost	15%	\$ 1500	Rp 21.000.000
<b>Total</b>	<b>100%</b>	<b>\$10.000</b>	<b>Rp 140.000.000</b>