

GROUP B - CV



FINAL PROJECT

WOOD BUNDLE COUNTER APPLICATION

TALLY & GRADE COUNTER

Start Slide

TEAM MEMBER

- **Andy**
- **Ezar Resha**
- **Khusnul Muchlisin**

GROUP B - CV



STUDI KASUS

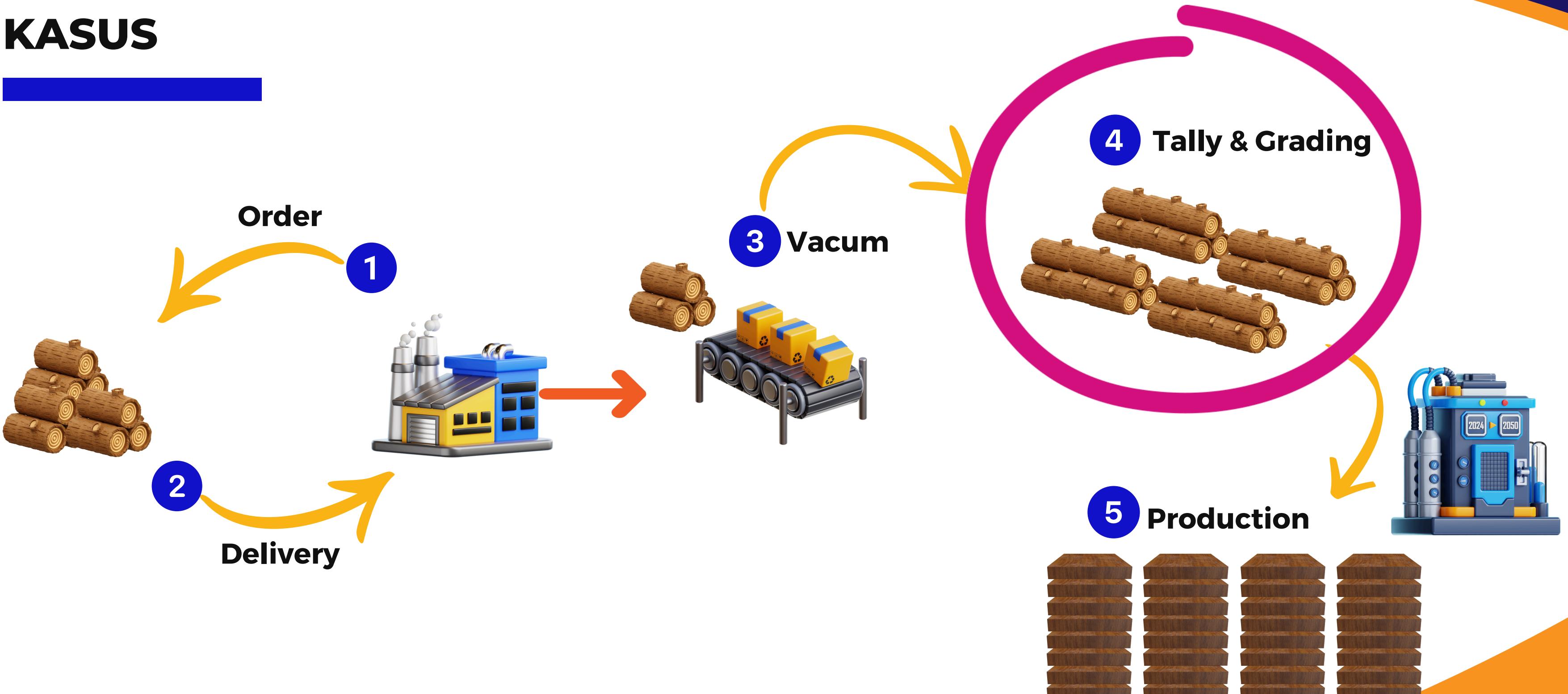
Lokasi Studi Kasus : Gudang Kayu Perusahaan X di lokasi KIM (Kawasan Industri Medan)

Profil Perusahaan : sektor industri yang bergerak dalam pembuatan veneer kayu keras (hardwood veneer) dan kayu lapis (plywood)

GROUP B - CV



STUDI KASUS



Alur Kerja Perusahaan

GROUP B - CV



STUDI KASUS

Masalah yang Dihadapi:

- **Pada saat Proses Tally & Grading,** Penghitungan manual memerlukan waktu yang lama dalam menghitung ribuan balok kayu.
- Proses Penghitungan Kayu sering terjadi selisih dan tidak tepat, Hal ini menyebabkan inefisiensi di bagian produksi, karena stok yang dilaporkan sering tidak akurat.

GROUP B - CV



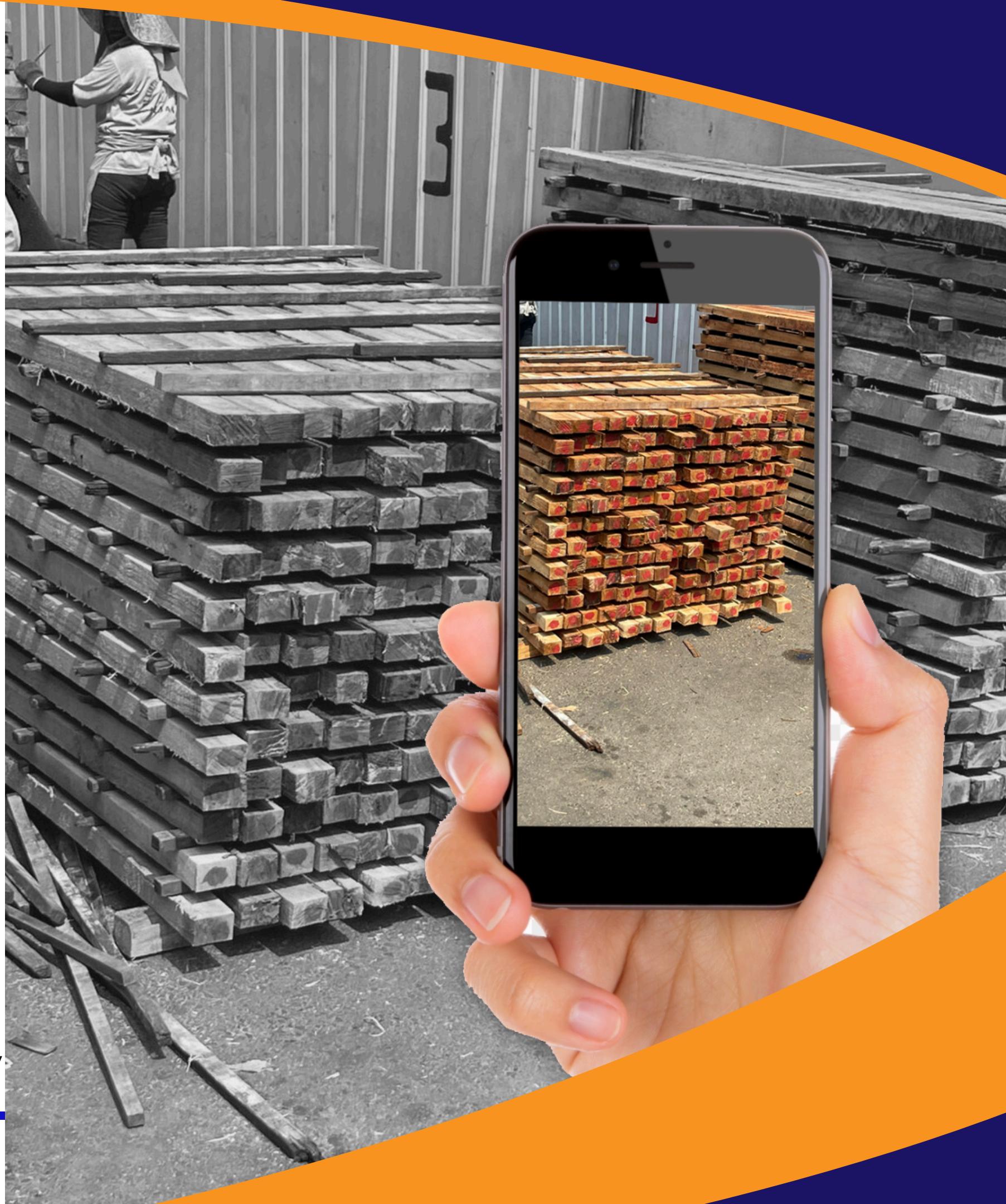
SOLUSI USULAN

Solusi :

Object Detection dengan model seperti YOLO 8 (You Only Look Once),

Image Classification untuk mengenali warna dan grade kayu.

GROUP B - CV



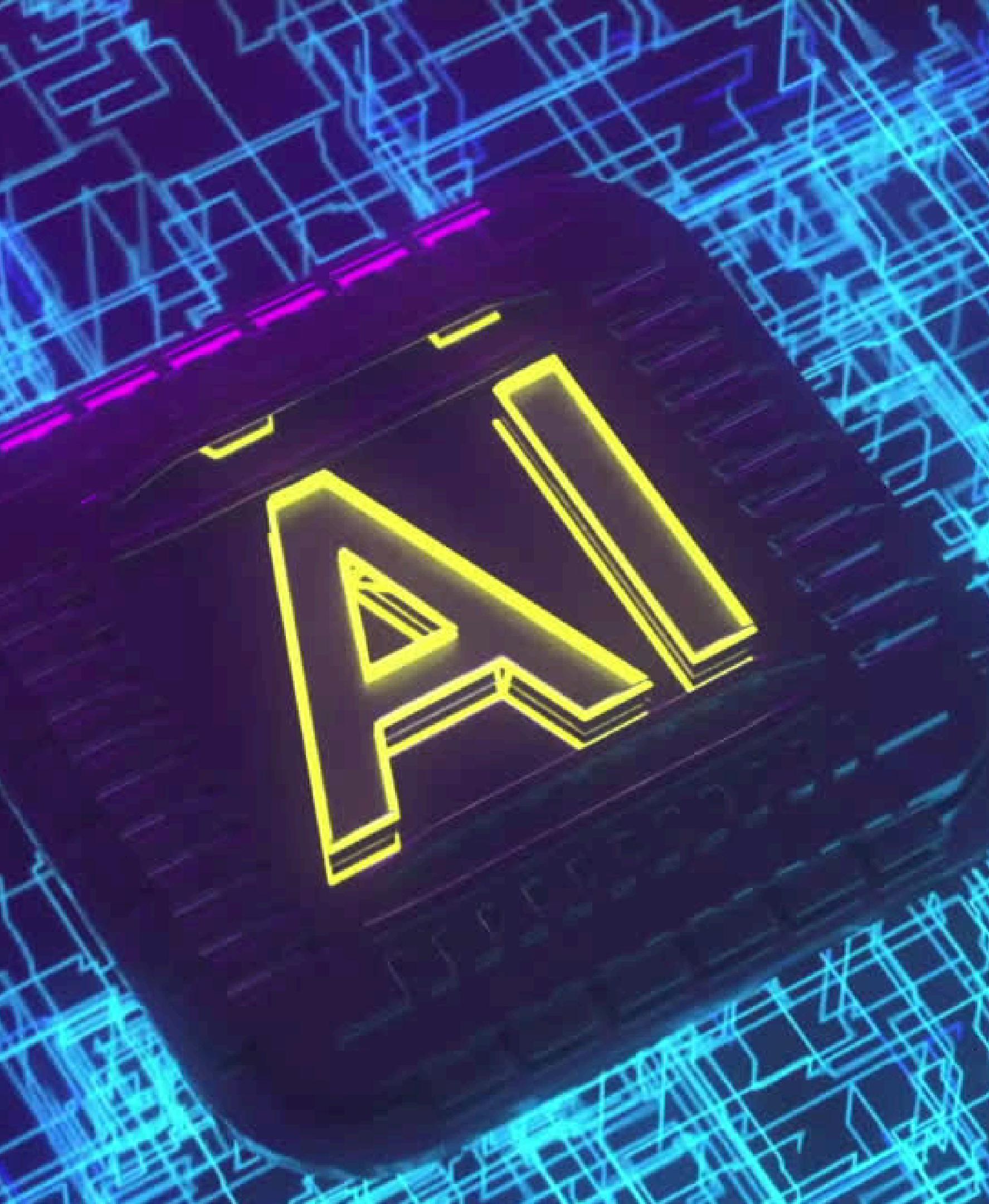
SOLUSI

USULAN

Urutan Tahapan Proses :

- Pengumpulan Dataset
- Pemilihan Model (Yolo8)
- Preprocessing Data (Resize & Augmentasi)
- Training Model (Learning rate, jumlah epoch, batch size)
- Validasi & Evaluasi Model (Accuracy, Precision, Recall, F1-Score, dan IoU (Intersection over Union))
- Deteksi Warna (Klasifikasi Warna)
- Penghitungan Balok berdasarkan Grade (warna)
- Output berupa data Json {"total_balok": 150,"grade_4": 50,"grade_3": 40,"grade_2": 60}

GROUP B - CV



SOLUSI

USULAN

Ultralytics YOLOv8.2.82 Python-3.8.19 torch-2.4.0 CUDA:0 (NVIDIA GeForce RTX 4060 Laptop GPU, 8188MiB)
engine\trainer: task=detect, mode=train, model=yolov8n_wood.pt, data=data.yaml, epochs=100, time=None, patience=100, batch=16,
Overriding model.yaml nc=1 with nc=3

TRAINING MODEL

- Learning rate : 0.01
- Jumlah epochs : 100
- Momentum : 0.937
- batch size : 16
- imagesize: 640

	from	n	params	module	arguments
0	-1	1	464	ultralytics.nn.modules.conv.Conv	[3, 16, 3, 2]
1	-1	1	4672	ultralytics.nn.modules.conv.Conv	[16, 32, 3, 2]
2	-1	1	7360	ultralytics.nn.modules.block.C2f	[32, 32, 1, True]
3	-1	1	18560	ultralytics.nn.modules.conv.Conv	[32, 64, 3, 2]
4	-1	2	49664	ultralytics.nn.modules.block.C2f	[64, 64, 2, True]
5	-1	1	73984	ultralytics.nn.modules.conv.Conv	[64, 128, 3, 2]
6	-1	2	197632	ultralytics.nn.modules.block.C2f	[128, 128, 2, True]
7	-1	1	295424	ultralytics.nn.modules.conv.Conv	[128, 256, 3, 2]
8	-1	1	460288	ultralytics.nn.modules.block.C2f	[256, 256, 1, True]
9	-1	1	164608	ultralytics.nn.modules.block.SPPF	[256, 256, 5]
10	-1	1	0	torch.nn.modules.upsampling.Upsample	[None, 2, 'nearest']
11	[-1, 6]	1	0	ultralytics.nn.modules.conv.Concat	[1]
12	-1	1	148224	ultralytics.nn.modules.block.C2f	[384, 128, 1]
13	-1	1	0	torch.nn.modules.upsampling.Upsample	[None, 2, 'nearest']
14	[-1, 4]	1	0	ultralytics.nn.modules.conv.Concat	[1]
15	-1	1	37248	ultralytics.nn.modules.block.C2f	[192, 64, 1]
16	-1	1	36992	ultralytics.nn.modules.conv.Conv	[64, 64, 3, 2]
17	[-1, 12]	1	0	ultralytics.nn.modules.conv.Concat	[1]
18	-1	1	123648	ultralytics.nn.modules.block.C2f	[192, 128, 1]
19	-1	1	147712	ultralytics.nn.modules.conv.Conv	[128, 128, 3, 2]
20	[-1, 9]	1	0	ultralytics.nn.modules.conv.Concat	[1]
21	-1	1	493056	ultralytics.nn.modules.block.C2f	[384, 256, 1]
22	[15, 18, 21]	1	751897	ultralytics.nn.modules.head.Detect	[3, [64, 128, 256]]

Model summary: 225 layers, 3,011,433 parameters, 3,011,417 gradients, 8.2 GFLOPs

TECH STACK

FRONT END

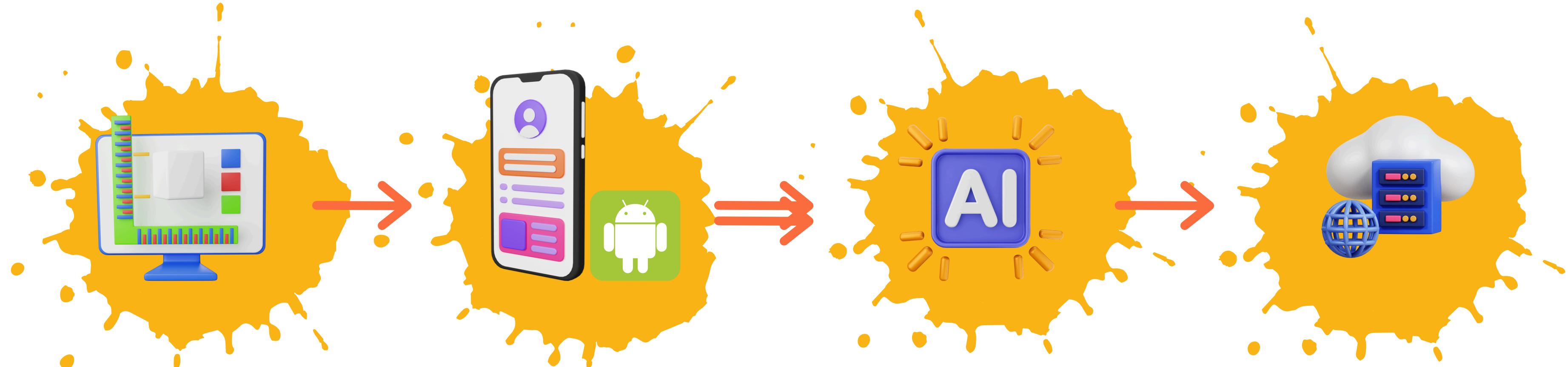
React-Native
React
TypeScript
Axios
Expo

BACK END

Python
Ultralytics (YOLO)
OpenCV
Docker
Railway

GROUP B - CV

DEMO APLIKASI



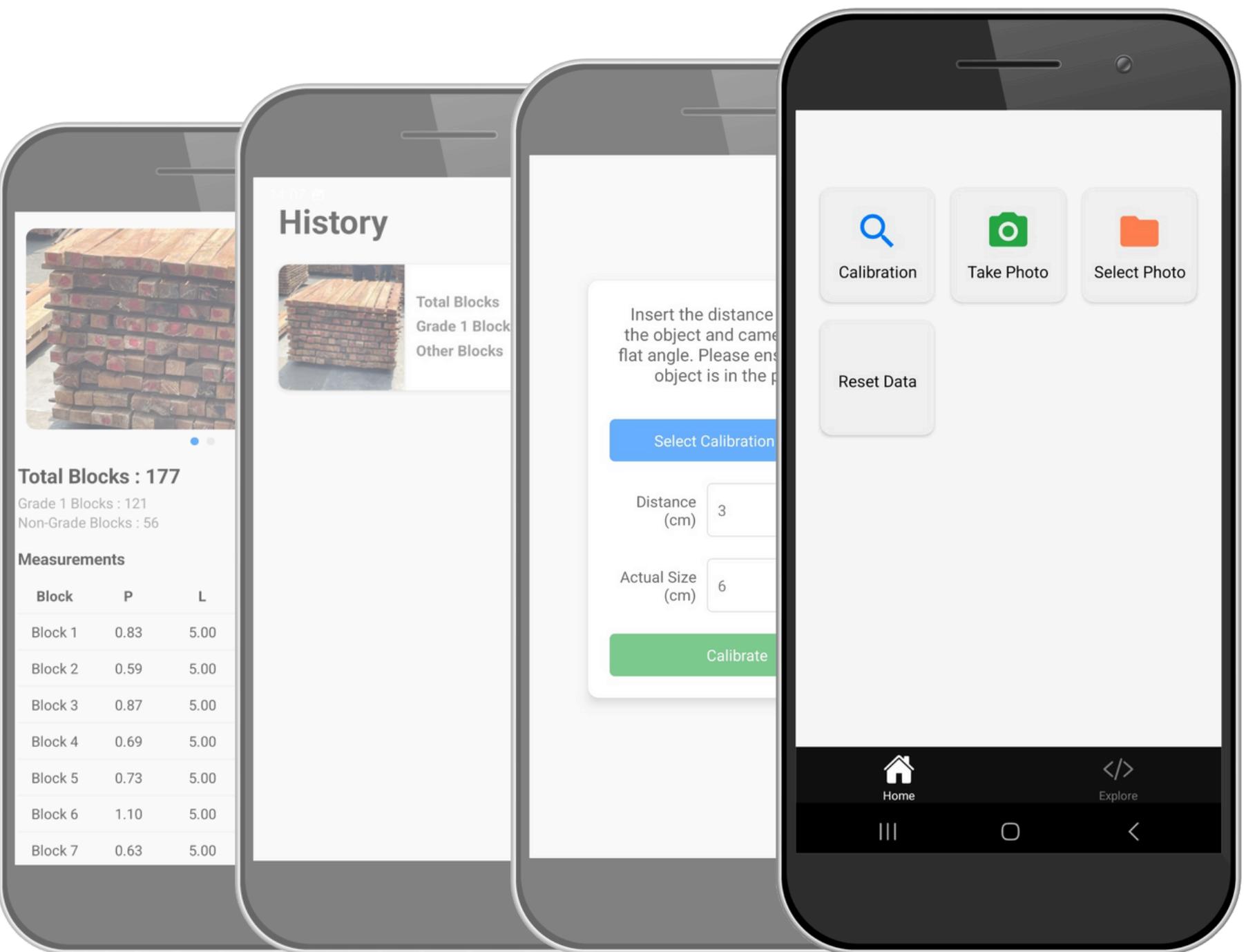
1. Kalibrasi
- Jarak,
- Lebar(cm)
- Resolusi(px)

**2. Ambil Gambar /
Upload Gambar**

3. AI
Output : JSON

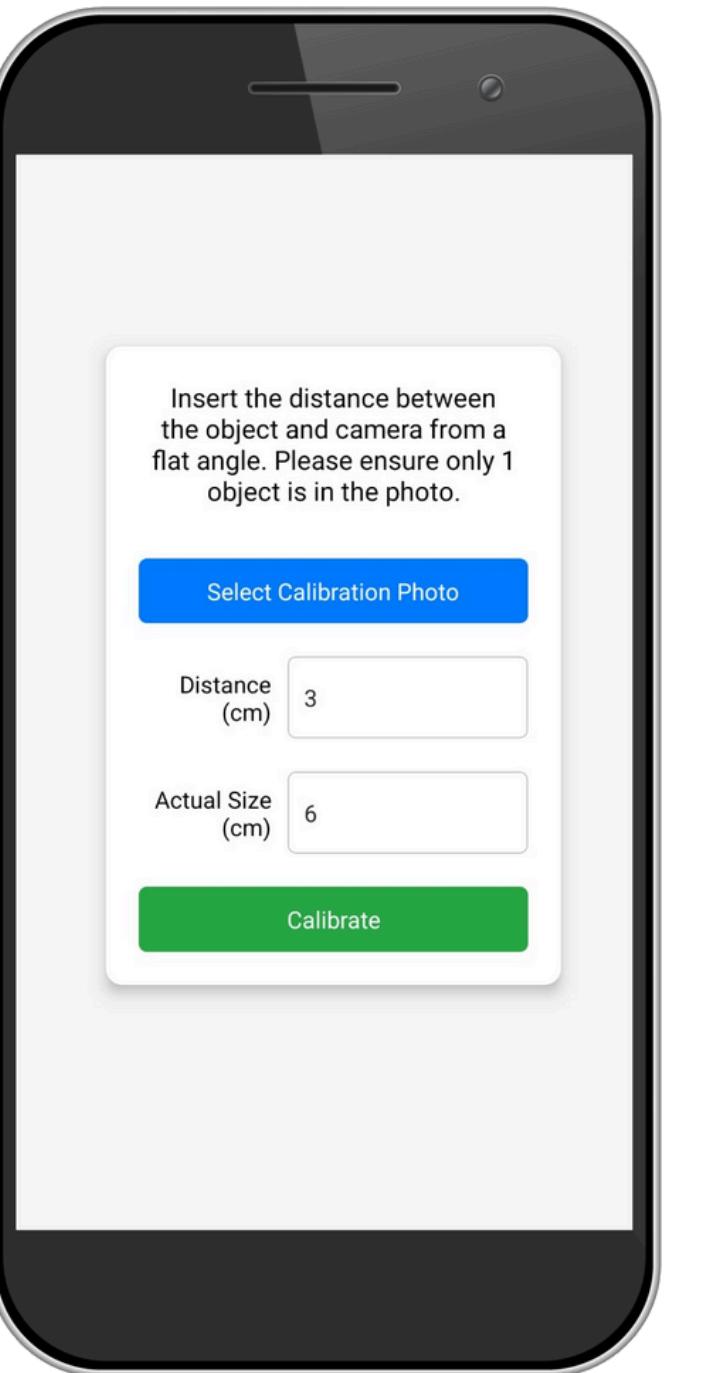
4. Simpan ke server

DEMO APLIKASI



GROUP B - CV

DEMO APLIKASI



1 Kalibrasi (Jarak, Lebar(cm), Resolusi(px)

GROUP B - CV

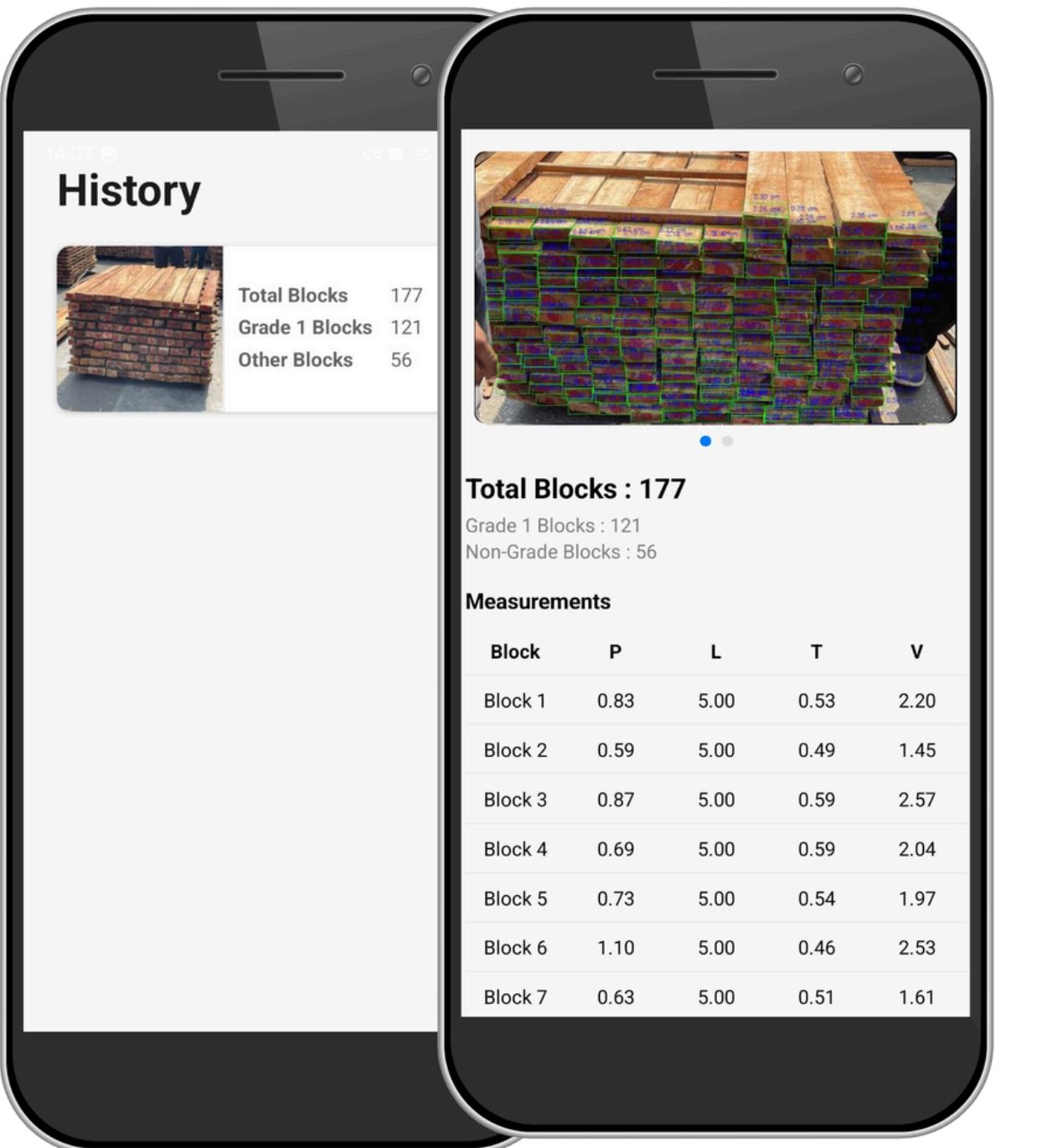
DEMO APLIKASI



2 Ambil Foto / Upload Gambar

GROUP B - CV

DEMO APLIKASI



3 AI Proses Data & Hasil

GROUP B - CV

DEMO

APLIKASI

Bisa langsung dicoba juga di handphone Android!



SELESAI



TERIMA KASIH

GROUP B - CV