FACE RECOGNITION AND TEMPERATURE DETECTION SYSTEM FOR ATTENDANCE AND BODY TEMPERATURE CHECKING BASED ON IOT

Capstone Design

Program S1 Teknik Komputer
Fakultas Teknik Elektro
Universitas Telkom
Bandung 2023

OVERVIEW

Capstone Design Member

Fakultas Teknik Elektro
School of Electrical Engineering
Telkom University

**Annisa Aprilia Putri S
(1103194005)**

*- Hardware
- GUI Precence*
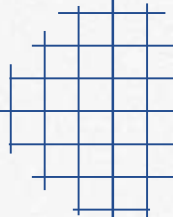
**Muhammad Syaiful Rahman
(1103192198)**

*- Website and Database
- Bot Telegram*

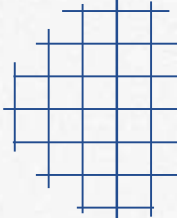**Ni Kadek Ayu P
(1103194119)**

- Algorithm

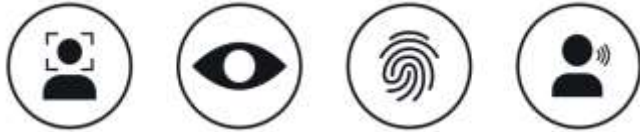# Our Advisor

Dr. Meta Kallista, S.Si., M.Si.

Advisor 1

Faisal Candrasyah Hasibuan, S.T., M.T.

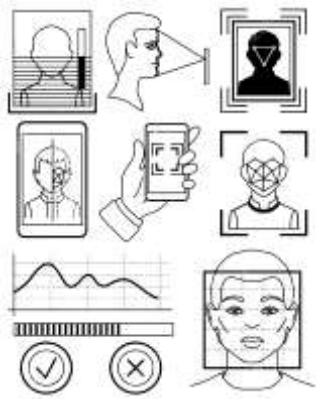**Advisor 2**

Background

Biometric

Attendance

Face Recognition

IoT

Problem Statements

There are several issues when the attendance process is still conducted manually, such as:

Queuing
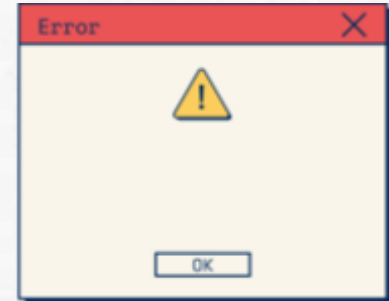
Loss of attendance data

Forgery of attendace data

Problem Limitations

Two Face in Frame

Twin Face

Error

More than 30 Facial Data Were Captured

The Goals of Capstone

The purpose of the capstone design of this final project is so that this tool can be used effectively in schools and can be used both on a small scale and on a large scale.

In addition, teachers and parents of students will easily access attendance data via telegrams and websites.
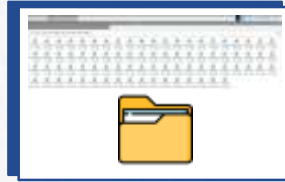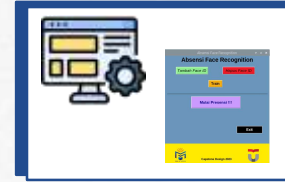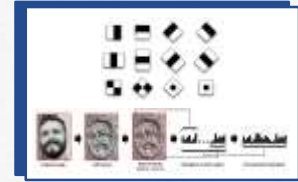
Required Needs

Main tools and components

Face Dataset

GUI for presence menu

Haar cascade method and LBPH

Temperature detection

System accuracy

Database and website

Voice alert

Graphical User Interface for Menu Precense

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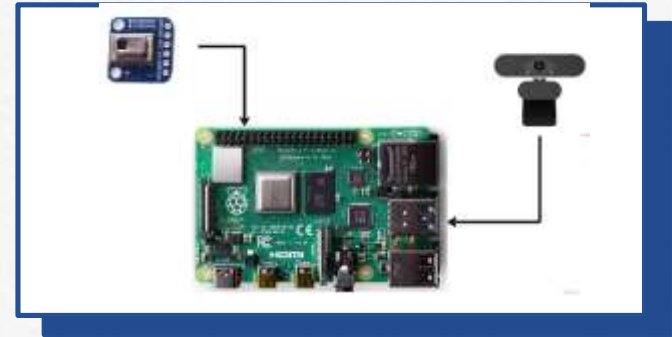School of Electrical Engineering
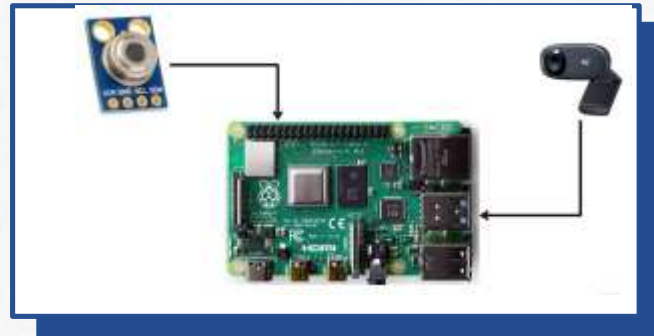Telkom University

Solution Options

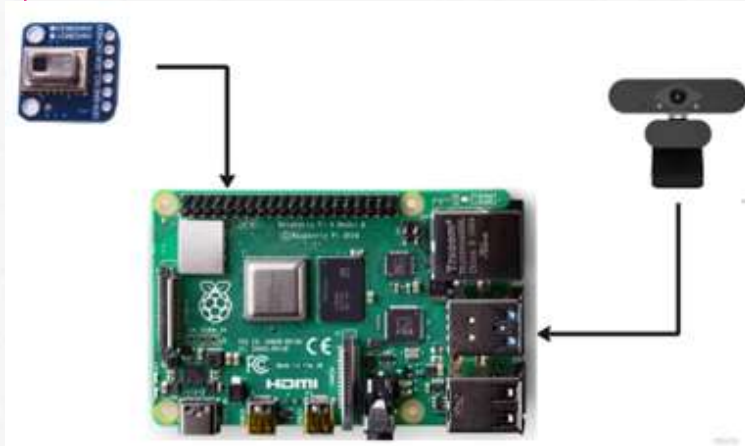**(1) MLX90640 and Webcam**
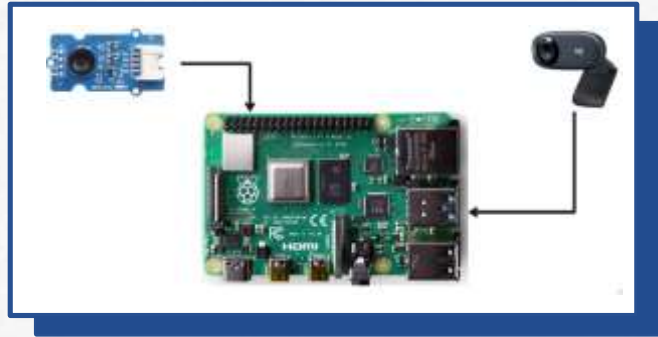
(2) AMG8833 and Webcam

(3) MLX90614 and Webcam

Selected Solution
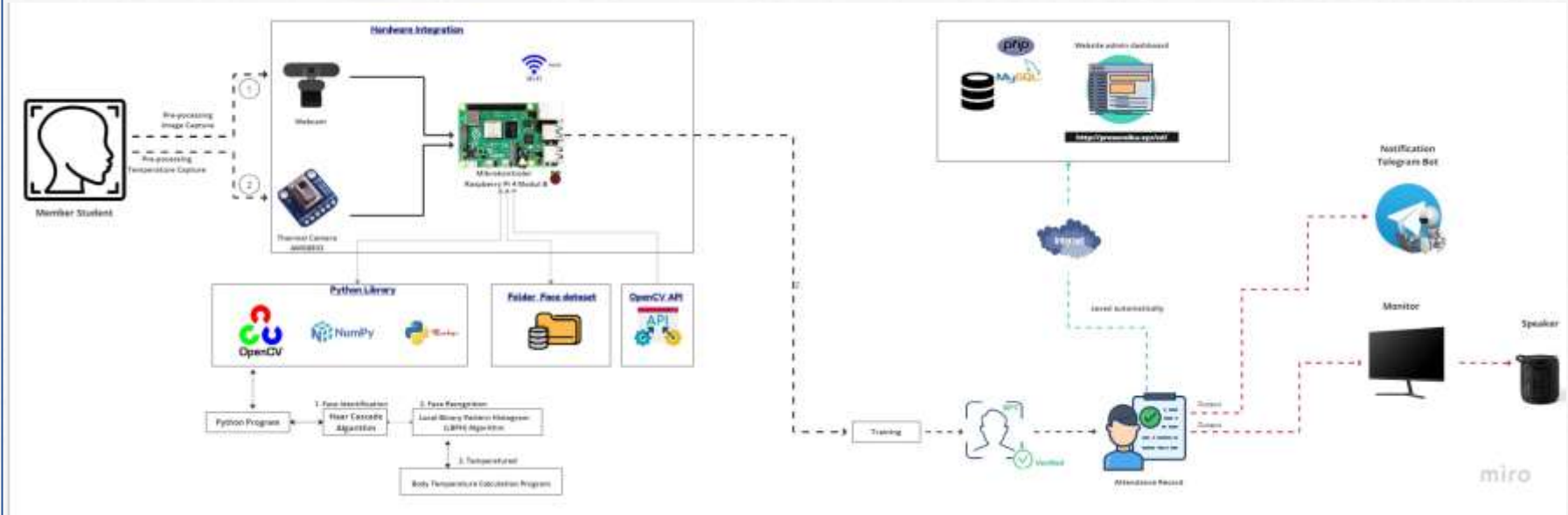
AMG8833 and Webcam

(+)

In terms of price, the AMG8833 temperature sensor is more affordable than the MLX90640 temperature sensor.
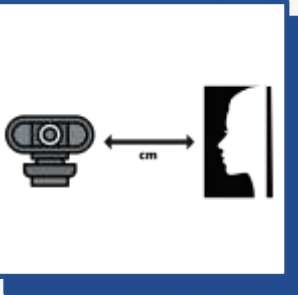
(+)

In terms of accuracy, AMG8833 has higher accuracy compared to MLX90614.
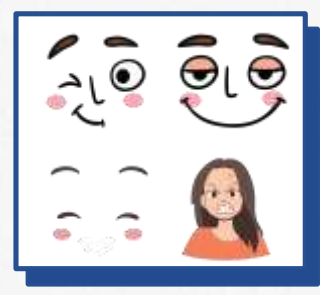
System Design Plan

TESTING METHODS

Distance

Background

Light/ Flash

Accessories

Expression

Indoor

Outdoor

Spesification

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Spesification 1

The system is able to detect and identify face patterns

Spesification 2

The system can measure body temperature with facial samples using AMG8833 thermal camera

Spesification 3

Accuracy of the system working with distance, light, and background

Spesification 4

The system can communicate with the database to monitor attendance results.
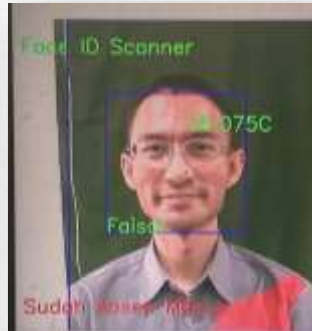
Spesification 5

The system can send notifications to the user's telegram with the help of Telegram Bot

Spesification 6

The system can display and download the recapitulation of attendance result data
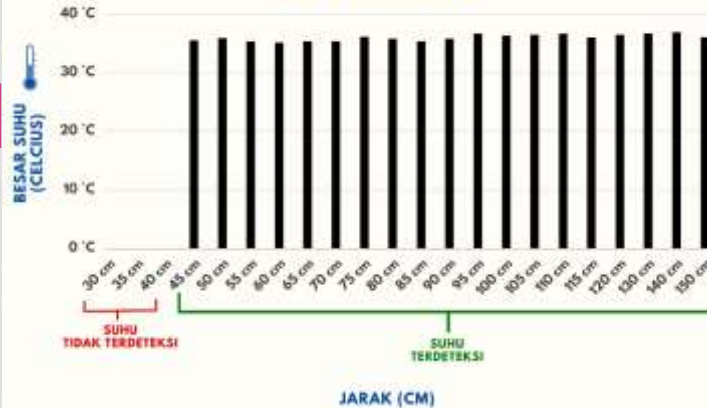
Testing 1

Testing 2

Jarak	*Thermogun*	*Thermal Camera AMG8833*	Selisih	*Error %*	Akurasi %
40 cm	36.4°C	36.22°C	0.27	0.47	100
50 cm	36.2°C	36.35°C	0.15	0.41	95.59
60 cm	36.1°C	36.55°C	0.45	1.25	99
70 cm	36.0°C	36.3°C	0.3	0.83	99.17
80 cm	36.0°C	36.5°C	0.5	1.39	99.45
Nilai Rata-Rata			0.33	0.87	98.79

Testing 3

PENGUJIAN JARAK TERHADAP SUHU YANG TERDETEKSI

PENGUJIAN BACKGROUND TERHADAP KECEPATAN VALIDASI

Testing 4

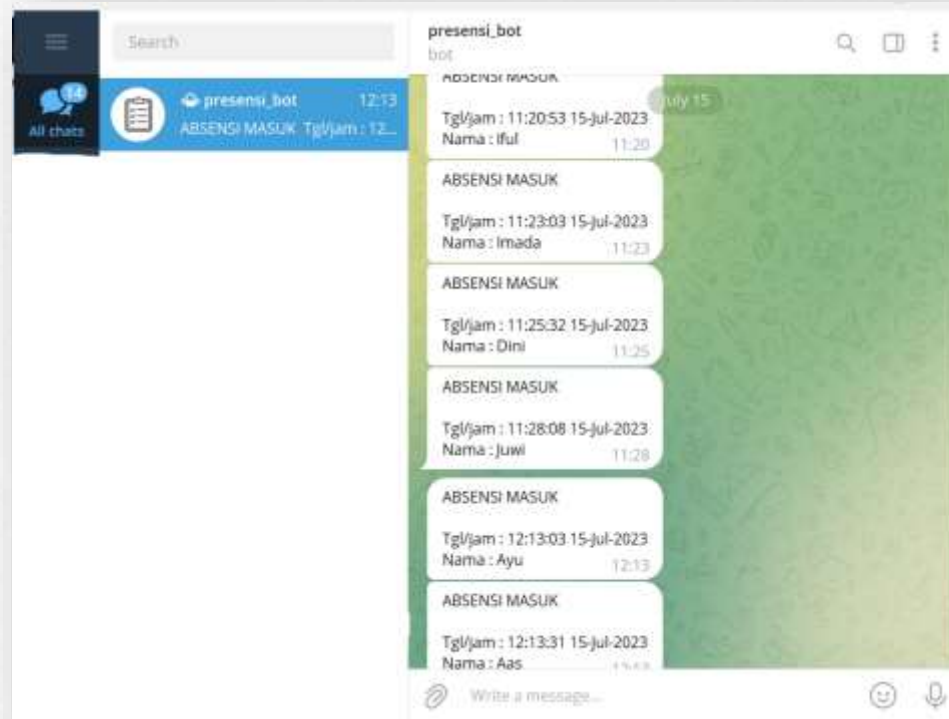*Online Database Server*

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Telegram Bot

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Website

http:presensiku.xyz/cd
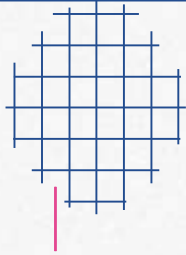
Characteristics of the Product

main features

basic features

additional features

Demo

Testing the device at Al Kenzie School.

Conclusion

From field testing, this tool, both in terms of hardware and software, can function properly on a small and medium scale and can provide convenience to users in the attendance process in the laboratory environment and also in schools.

CONCLUSION

Thank You