VISVESVARAYA TECHNOLOGICAL

UNIVERSITY,BELAGAVI – 590 018

An ASSIGNMENTREPORTON

Raspberry Pi Face Recognition-Based Door Lock

Submitted as subject assignment work,

for the subject

Microcontroller And Embedded System(21CS43)

By

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UndertheGuidanceof

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TECHNOLOGYMOODBIDRI-574225, KARNATAKA 2022-23

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

CERTIFICATE

This is to certify that **Mohammed Ansar** bearing USN **4AL21CS072**has successfully demonstrated the working of Raspberry Pi Face Recognition-Based Door Lock as the assignment work for the subject **"Microcontroller and Embedded System(21CS43)"**and submitted a report during the academic year2022–23 even Semester. It is certified that all corrections/suggestions indicated in the presentation session have been in corporate into the report & scored Marks out of 10 and deposited in the department tallibrary.

09/10

Mrs. Babitha

Poojary Assistant Professor

Raspberry Pi Face Recognition-Based Door Lock

The face recognition-based phone unlocking system launched by Apple on its iPhones in 2017 took the world by storm and has been a disruptive technology since then in the smartphone industry. Similarly, home security, monitoring and automation devices have recently become an integral part of many people's lifestyle. A previous maker.io blog explained the complete ecosystem, the common sensors in existing commercial products, and the common concepts for the maker community.

BOM

- Raspberry Pi 4B
- Raspberry Pi Camera Module V2
- Jumper Cables
- Servo Motor
- LED Touch Screen 4.3 inches
- Raspberry Pi4 USB-C Power Supply

Introducing the Project

Computer vision technology has been an area of active research for decades because the possibilities of applications are innumerable. The common applications of computer vision and image processing include text recognition, depth perception, visual odometry, object detection and recognition, pose estimation, human face detection and recognition, among many others.

Detecting and recognizing objects in a camera's field of view is a very important task with applications in automation, robotics, and manufacturing industries.

The Difference Between Detecting and Recognizing a Face

Face Detection is the application of image processing techniques to determine if the image is/has a human face or not. It is analogous to object detection, but the distinct and consistent features of the human face make face detection a more informed task achievable by hand-tuned feature descriptors and conventional image processing methods. Face detection is the precursor to face recognition. Face detection in a scene with multiple people or objects introduces challenges in localization of the bounding box for the face.