Intellegent Door Lock

Black Theory

Version 1.0

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Fadi El-Nemri, Angelica Reyes, Matthew Boyer
fadiel-nemri@my.unt.edu, angelicareyes39@my.unt.edu, matthewboyer@my.unt.edu

User Manual

Version 1.0

Contents

A. Introduction

1. Purpose Document

The purpose of the document is to guide the user on how to use the Intelligent Door Lock.

2. Scope

Consumers, Intelligent Door Lock Users

Project Developers

B. Product Description

1. Key Features

The Intelligent Door Lock System is an innovative way to protect your home from uninvited guests. It uses the new AWS Face Recognition Artificial Intelligence to identify a person approaching the door. A smart doorlock that is connected to the facial recognition software activates when facial recognition has been confirmed. In order to save energy, the system goes idle when there is no activity. A sensor detects any motion and activates the system.

2. Product Dimensions

10 x 9 x 1 in

0.92 lbs (420 grams)

3. Packaging

- *HC-SR04 - Ultrasonic sensor*
- *TSL2561 - Lux sensor*
- *LED - Cathode LED RGB light*
- *Raspberry Pi 3B*
- *D415 Intel-Realsense RGBD camera**
- *Bright Pi v 1.0*
- *Main script (controls all software functionality).*
- *Door Lock 12V*
- *10000 mAh power bank*
- *DC-1561W Magnetic contact*

4. Environment

Please make sure you have access to the USA standard voltage outlet (120 V 60 Hz). This product is made to be used in the USA. This product requires the use of Wifi. Pairs with most monitors that have an HDMI port.

5. Normal System Operation

When set up correctly, this product offers keyless access via facial recognition. A red light will indicate the system is powered on. A green light will indicate the motion has been detected by the sensor and the system has captured the event. Yellow light will indicate processing of information by the facial recognition software.

C. Product Installation

1. First-Time Users

A first user would be required to have the product installed as it would require physical modifications to the door and wall immediately next to it.

Creation of an AWS account would be required.

2. Access Controls

The access controls available in AWS would be applicable to the product as well.

3. Installation

Pi housing module would have to be screwed into a wall near the door, the camera and the sensors must be placed on the outside of the door, and the mechanical lock will replace the lock already inside the door.

4. Configuration

Profiles can be configured through AWS where the user will upload pictures of approved profiles (people).

5. Starting the System

System will start automatically once powered on.

6. Stopping the System

The only way to stop the system fully is to power it off by unplugging it from the power.

7. Suspending the System

System will be suspended for 15 minutes by covering up the ultrasonic sensor for 15 seconds.

D. Step-by-Step Usage

1. Instructions

A user will approach the door, an orange light will light on, this light will display the status of the lock; orange is processing, red is denied entry, and green is access granted. After about 10 seconds the system will come to a decision and either unlock the smart lock or keep it locked. To reattempt entry, the user must wait 50 seconds to rebegin the process.

2. Conventions

A specific user profile will be created (based upon the primary user of the system) and three tests separate facial recognition tests will be performed in order to properly assess the

accuracy of each unit.

3. Errors, Malfunctions, & Emergencies

Most errors can be solved by restarting the system. For errors with facial recognition you will need to contact the manufacturer, Amazon.com, Inc

4. Messages

The monitor/tablet will display the following messages:

Open - The door lock has been activated

Closed - the door has been closed

Match - A profile match has been found via face recognition

No Match - No profile match has been found via face recognition

E. Quick Start Guide

Quick start on page 5.

F. Appendixes

1. Reference Documents

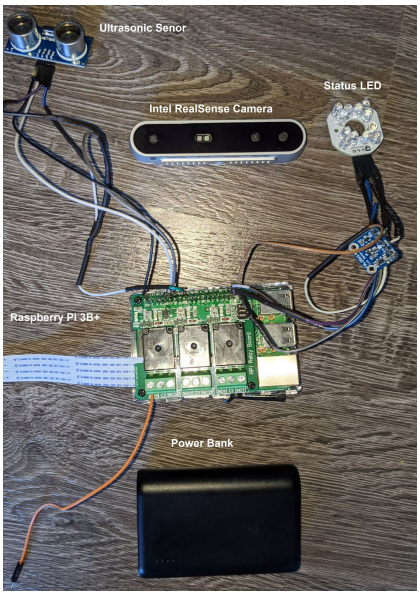
https://docs.aws.amazon.com/rekognition/latest/dg/rekognition-dg.pdf

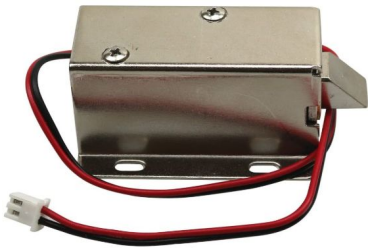
2. Glossary

- ❏ Facial Recognition - a biometric software application capable of uniquely identifying or verifying a person by comparing and analyzing patterns based on the person's facial contours.
- ❏ AWS - (Amazon Web Services) is a secure cloud service platform that provides on demand cloud computing platforms and APIs.
- ❏ API - a set of functions and procedures allowing the creation of applications that access the features or data of an operating system or application.

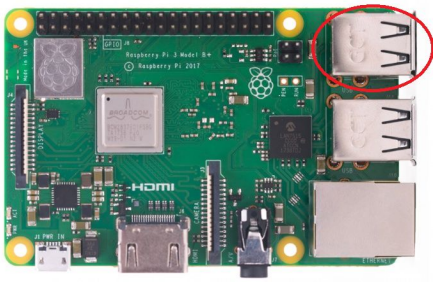
Quick Start

Package Contents





1. **Plug the Intel RealSense Camera into the USB Port on the back of the Raspberry Pi**



2. **Plug in the Power Adapter**
3. **Run “python ultra.py” in the terminal to start the Intelligent Door automated facial recognition**