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Informative Refrigerator for User

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Abstract: **Now a day's the peoples are very busy in their own work after finishing their works they went to home and again come to market and they buy the vegetables what they required. it is very complicated and time consumption. So to overcome from this problem we implement informative refrigerator and by using this refrigerator, when user wants the information about the availability of vegetables inside the refrigerator user using their own mobiles and internet they get live image. By that we can know which vegetables are available or not. And by using camera we capture the image and sends to user mail id in 5 seconds.**

Keywords: **Refrigerator, camera, relay, bulb, mobile, power supply**

1. Introduction

"To Eat is a Necessary, but to Intelligently is an Art"

Refrigerator is the most frequently used kitchen appliances all over the world for food storage. Informative refrigerator gives the information about the availability of food items present inside the refrigerator by capturing the image using camera. When user wants the image of refrigerator they have to send a request through the blynk app and by use of internet they can get image of refrigerator through the e-mail. From the image we can get idea about food items present inside the refrigerator.
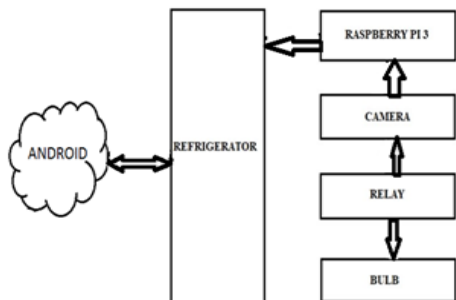
2. Methodology

Fig. 1. Block Diagram of Informative Refrigerator

The project consists of hardware and software layers. The hardware layer comprises of microcontroller (Raspberry pi 3), Camera, Relay, Tungsten bulb, Android mobile, refrigerator. The software layer comprises of python 3(IDLE) platform. Initially we have to send a request message to the system to send the captured image. Here we use two e-mail id, one for system and another for user. The blynk app create different authentication code for different users. Through blynk app user sends the request to system, when the authentication code matches, raspberry pi started processing and camera capture the image, then the captured image send to user email id.
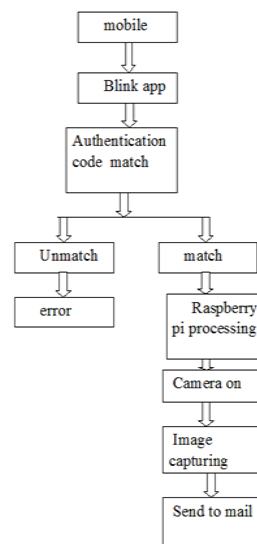

Fig. 2. Flowchart

Table 1
Components required

Components	Specification
Raspberry pi 3	B+
Camera	Sony IMXL219
Relay	2 channel USB relay
Mobile	-
Power supply	5V

3. Components used

A. Raspberry Pi3

The raspberry pi foundation provides raspbian, a debian –based linux distribution for download, as well as third –party Ubuntu, windows 10 IoTcore, RISC OS, and specialized media center distributions. It promotes python and scratch as a main programming language.
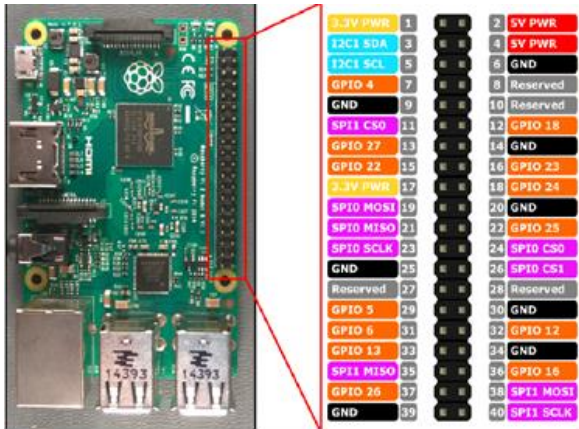
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Fig. 3. Raspberry Pi3

B. Pi camera

The raspberry pi camera module can be used to take high definition video, as well as stills photographs. It's easy to use for beginners, but as plenty to offer advanced users if you are looking to expand your knowledge. They camera module is very popular in home security application and in wildlife camera traps.

Fig. 4. Pi camera

C. Refrigerator

Refrigerator is an essential food storage technique in developed countries. The lower temperature lowers the reproduction rate of bacteria, so the refrigerator reduces the rate of spoilage. Optimum temperature range for perishable food storage is 3 to 5 degree Celsius.

4. Result and conclusion

This paper presented the clear picture of a food item inside the smart refrigerator. The module allows the user to get the information about the food present in the refrigerators. A smart fridge was proven to have greater accuracy when creating a shopping list. A fridge that uses a similar algorithm would be able to create shopping lists that are more useful to a user and could possibly make the user healthier and provide them with a more enjoyable shopping experience.

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