FRIDGE AUTOMATION SYSTEM

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Abstract— This paper presents the DIP based fridge automation system using GSM module ,which allow the remote user to know the availability of object kept in fridge smart refrigerator concept, its main features include: food management functions, that a intelligent refrigerator can identify not only the type of food but also the quantity information, and if the food is not enough, the refrigerator will remind its users to buy, furthermore the refrigerator can recommend recipes to user, advocate the healthy eating; network connectivity, that a smart refrigerator can be connected via phone or Internet with the user, so that users can remotely see the food in the refrigerator, and to buy food selectively.

Keywords: Fridge, object detection, Diseases detection, DIP, GSM.

I. INTRODUCTION

The new technology and automation has developed in every field so the industry has grown to change the traditional fridge to automation fridge which ultimately leads comfort lifestyle of human being. The automation in fridge includes the tracking of items kept in fridge by the remote user. It also includes the food management function , that the fridge can identify not only the object but also the quality of object and if any object is not as per the user requirement through the GSM the user get its notification by it furthermore the fridge also reminds the objects needed for the recipes. As the fridge does quality of food management which helps in recognizing in expired object which leads to healthy eating. Network connectivity , that a smart fridge can be connected via GSM or internet user ,so that users can remotely see the food in the fridge ,and to buy selectively.

The disease recognition in the vegetable has also attracted the industries approach and a numerous new research and technology in developing ,along with this all such developing approach is included in the automation for the most comfort life and speedy lifestyle for human. In this technique the disease vegetable is recognized using image processing and its detailed is maintained through the database and user gets its benefit, this technology is also beneficial for the farmers, because a huge amount of money is invested in growing the vegetables and a lots of care is required in growing of vegetables. Early detection will help the farmers to avoid huge loss.

II. RELATED WORK

The refrigerator system is used for medicine monitoring for patient using RFID and GSM, in which the patient diet is monitored using RFID based tag's and this information is delivered to computer with suitable format , in this system GSM is used for sending short message to doctor , patient or familiar member because of this patient is cared at low cost . (RFID-IRHH)[1]. The object recognition and detection process for food is shown. For this purpose they have used vision system and sensors like like optical sensor, humidity sensor and temperature sensor. The paper shows that smart fridge can detect the object and show its health(RI&R)[2]. Techniques used for disease detection of vegetable. In the automatic vegetable disease detection ,several techniques like artificial intelligent can be used for comparing the data base and current image of vegetable to detect diseases(Ddv)[3].

III. METHODOLOGY

To object recognition-when any object place in fridge then that we will recognize and find matching with database object. If match then there count and expiry date update automatically(In database we store the particular expiry date

for object). That count and expiry date transfer to remote user by using GSM

And when we add another object in fridge then count will increase automatically. Before expiry date we get intimation through SMS. It Also display on LCD display. Initially the camera will capture the object images in fridge ,then the further image processing for recognition ,counting, expiry of object, schedule of dishes all such thing is compared with the stored database in matlab. As there is interfacing between PC and GSM so the user get the information about the things present in fridge, it is also displayed on LCD as there is interfacing between PIC and LCD.
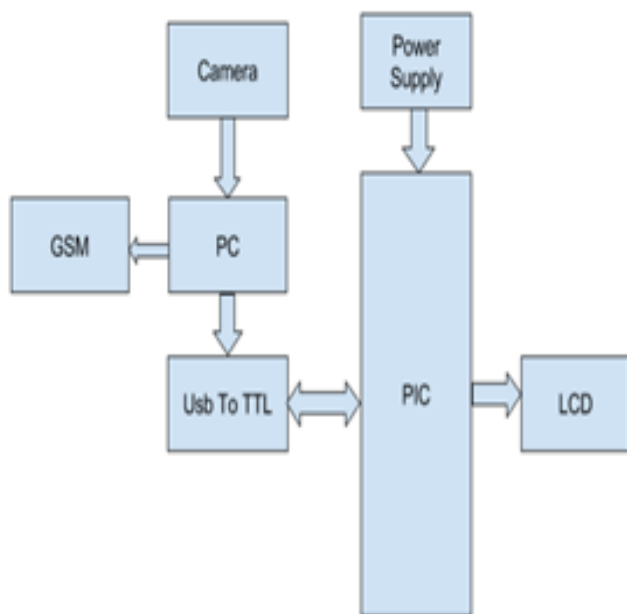
IV. SYSTEM DESIGN

Fig. 1 System Block Diagram

1.Camera is used to capture the image of the objects present in fridge then that image is compared with the stored data base .

2. In PC the image processing is done using matlab software in which object recognition ,counting, disease detection , scheduling of object and one day before expiry message is provided.

3. For providing message to the remote user GSM is used. For connection between PC and PIC microcontroller USB to TTL is used.

4.The same message will received by user is also displayed on LCD display.

V. RESULT ANALYSIS

1. Recognition process of object is done by camera. So the remote user receives the message with the help of GSM . The message is also displayed on LCD.

2. The counting of various objects kept in fridge is done using matlab code, so the no. of available object in fridge is known by user.

3. If any defected object present or any object going to expire then its expiry is given through message one day before to user.

4. As per the scheduled foodstuff, if any object missing that reminder is obtained by user as per his or her suitability.

VI. CONCLUSION

The image processing application can detect any object. It can be used to detect single or multiple items. But for multiple item detection, the processing slower compared to single object detection and the image processing application generates multiple output images with just one item tag for each of the output images.

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