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LOCATION TRACKING SYSTEM FOR MENTALLY CHALLENGED PERSON

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Abstract
GPS is one of the technologies that are used in a huge number of applications today One of the applications is tracking the person and keeps regular monitoring on them. This tracking system can inform you the location and route travelled by person, and that information can be observed from anyother remote location.This system enables us to track target in any weather conditions. The hardware part which comprises of GPS, GSM, raspberry-pi, camera, and16x2 LCD and software part is used for interfacing all the required modules. Main objective is to design a system that can be easily installed and to provide platform for further enhancement.

Index terms: Gps, Pir Sensor, Rf Module, Camera, Raspberry Pi.

1. Introduction

In this modern world , GPS tracking is very important. It plays a major role in tracking a vehicles for security purpose and other applications. But more importantly, they can save lives[1][3]. Parents of mentally disabled children should consider investing in a GPS tracking device for their son or daughter to wear in order to ensure their safety. GSM modem is used for transmitting and receiving the data for communication purpose. It works on various frequencies i.e. EGSM 900MHz. It gives reports of mentally challenged person to caregivers or their parents. In this system, camera will be used to capture the image of the person for secure purpose because if the person had some injury or suffered from any problems that leads to major cause. This types of issues can be avoided by fixing camera along with GPS tracker. Then the captured data and co-ordinates that can be send through the GSM module to microcontroller which is Raspberry-pi. Raspberry pi is a mini computer which behaves and works as the PC.

Gerrit holzbach florianhas reviewed **Automatic Generation of Scene-Specific Person Trackers.**
The large variety of influencing factors requires the manual creation and optimization of person trackers for different environments as well as different views, such as in a distributed network of cameras. The manual creation and adjustments are time-consuming as well as prone to error and therefore expensive. We propose a system that uses basic computer-vision building blocks to automatically create and optimize a person tracker, using only a few annotated camera frames[5][6].The system has the potential to drastically reduce the cost of creating person trackers for new environments and optimizing it for every single camera in a camera network.

2. Qinglin tianhas reviewed **A Multi-Mode Dead Reckoning System for Pedestrian Tracking Using Smart phones.**

This paper proposes an approach for pedestrian tracking using dead reckoning enhanced with a mode detection using a standard smart phone. The mode represents a specific state of carrying device, and it is automatically detected while a person is walking[6]. This paper presents a new approach, which extends and enhances previous methods by identifying in real-time three typical modes of carrying the device and using the identified mode to enhance tracking accuracy. Based on the identification of modes, a lightweight step-based tracking algorithm is developed with a novel step length estimation model. The tracking system is implemented on a commercial off-the-shelf smart phone equipped with a built-in inertial measurement unit with 3-D accelerometer and gyroscope. [8]It achieves real-time tracking and localization performance with an average position accuracy of 98.91%.

3. Hardwares

3.1 PIR Sensor
Passive Infrared sensors (PIRs) are electronic devices which are used in some security alarm systems to detect motion of an infrared emitting source, usually a human body[5][7].The pyroelectric sensor is made of a crystalline material that generates a surface electric charge when exposed to heat in the form of infrared radiation.When the amount of radiation striking the crystal changes, the amount of charge also changes and can then be measured with a sensitive FET device built into the sensor.

3.2 RF Module
Radio Frequency, any frequency within the electromagnetic spectrum associated with radio wave propagation[7].When an RF current is supplied to an antenna, an electromagnetic field is created that then is able to propagate through space. Many wireless technologies are based on RF field propagation. Radio Frequency:[4] The 10 kHz to 300 GHz frequency range that can be used for wireless communication. Also used generally to refer to the radio signal generated by the system transmitter, or to energy present from other sources that may be picked up by a wireless receiver.

3.3 Raspberry PI and Specifications
Raspberry Pi board is a miniature marvel, packing considerable computing power into a footprint no larger than a credit card. It's capable of some amazing things, but there are a few things you're going to need to know before you plunge head-first into the bramble patch[2]. The Raspberry Pi, by contrast, is designed to run an operating system called GNU/Linux hereafter referred to simply as Linux. Unlike Windows or OS X, Linux is open source: it's possible to

download the source code for the entire operating system and make whatever changes you desire.

- Processor : Broadcom BCM2835 SOC (System on Chip)
- Core : ARM11 (700 MHz ARM1176JZF-S)
- Memory (RAM) : 256 Mb (Model A) or 512 Mb (Model B/B+)
- USB 2.0 : 1 (Model A) / 2 (Model B) / 4 (Model B+)
- On Board Storage : SD Card (Model A/B) / Micro SD (Model B+)
- Video Input : Camera Support via CSI Connector.
- Video Output : Composite Video (RCA) or HDMI or LCD Support via DSI.

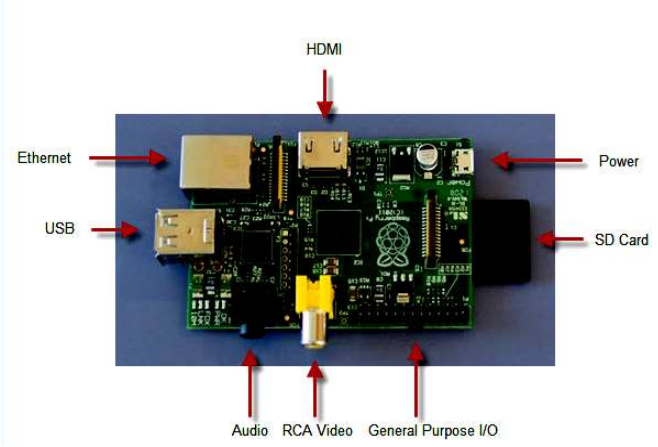
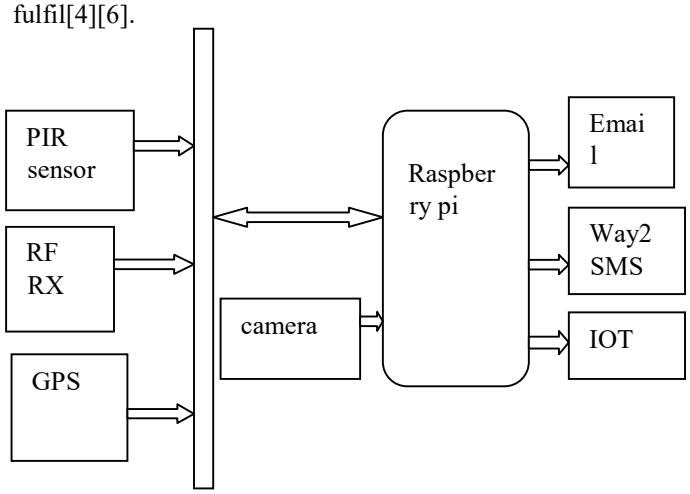


Fig.3(B).Raspberry Pi

The remaining part of the paper is as follows: Section 2 discusses the deep insights of recent techniques proposed in querying continuous aggregators. Section 3 provides the summary on the above study.

4. Methodology

The localization of people and objects is an important aspect of many applications. Because such information is required in an increasing number of different environments, video-based tracking systems are required for a large variety of different environments. However, designing person trackers is a challenging task as there are many requirements to fulfil[4][6].



For the design of a person tracker, it is not only the environment containing occlusions and specific illumination that poses a challenge, but also the variations of camera types and viewing angles relative to each scene. Even for a network of cameras that are placed within the same scenario, there are advantages of specific trackers or at least specific parameters, due to variations in the conditions at each camera.

5. Result And Discussion

We presented a system that can automatically create person tracking systems for arbitrary scenarios using only a short sequence of annotated frames as input. The system can choose the required modules automatically and optimize their parameters for the given scenario. The results of the evaluation show that the created configurations are adapted to the training sequence. If the training sequence is representative for the scenario the created configuration delivers good results for other sequences of the same scenario.

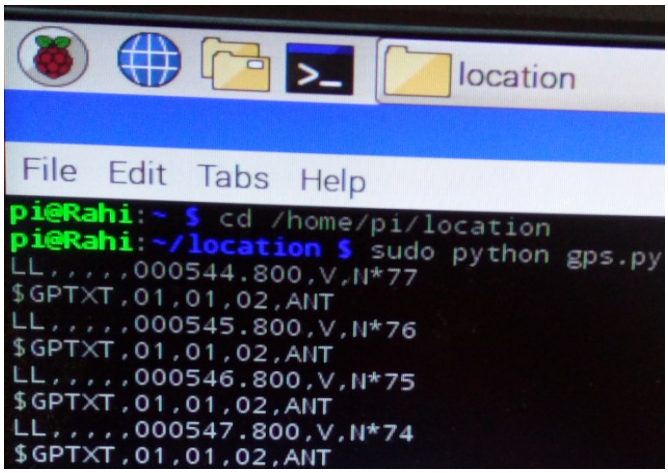


Fig: GPS output

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