International Journal of Research
Available at https://edupediapublications.org/journals
e-ISSN: 2348-6848
p-ISSN: 2348-795X
Volume 04 Issue 13
October 2017

Remote Sensing Accuracy Trade-Off for Continuous Mobile Device Location

***S. Lakshmi Lavanya**
P.G Scholar, Department Of ECE ,Vaagdevi Engineering College
Email : lavanya67.sadhu@gmail.com
****U. Rajitha**
Assistant Professor , Department Of ECE ,Vaagdevi Engineering College
Email : rajitha.undadi2009@gmail.com

ABSTRACT:

Location is a fundamental service for mobile computing. Typical GPS receivers, although widely available for navigation purposes, may consume too much energy to be useful for many applications. Observing that in many sensing scenarios, the location information can be post-processed when the data is uploaded to a server, we designed a solution that allows a sensing device to aggressively duty-cycle its GPS receiver and log just enough raw GPS signal for post-processing. Leveraging publicly available information such as GNSS satellite ephemeris and an Earth elevation database, a cloud service can derive good quality GPS locations from a few milliseconds of raw data. It can collect CO2 concentration, temperature, humidity, light intensity and other air environmental information through sensors and get the current position (longitude, latitude and elevation) and timing (GMT) information through Global Positioning System (GPS). Each node will then transmit the data to the monitoring station. The GSM network will send the collected data to the data center server. The system uses a compact circuitry built around microcontroller programs are developed in Embedded C. Flash magic is used for loading programs into Microcontroller

INTRODUCTION:

LOCATION determination is a fundamental service in mobility. In outdoor applications such as wildlife tracking, participatory environmental sensing, and personal health and wellness applications, GPS is the most common location sensor. GPS receiving, although becoming increasingly ubiquitous and lower in cost, is processing intensive and energy-consuming:

Mobile needs a good deal preference station data plus zillions of

strategies for motile approach localization have been matured. With GPS receivers changing into more and more common in ambulatory dials and the widespread availability of Wife and mobile-tower stamp primarily based on the whole community services and products coming out of Google more company, this whereabouts technological know-how is now becoming a fact. However, peripatetic petitions choke cannot adopt unbroken and ubiquitous whereabouts get proper of access to in their prepare because of the excessive capability intake of with the scene sensors corresponding to GPS receivers [12]. The tension miscue provided by means of various whereabouts sensors and the limits on their broadcasting areas pose other stressful situations for appeal developers. Using more than one scene sensors simultaneously to make up for the aforementioned one tension miscue might further increase strength use. Our goal is to expand whereabouts as a system provider that robotically manages whereabouts sensor availability, veracity, and dynamism. From an attraction developer attitude, that simplifies the use of the couple of existing, and doubtlessly imminent, scene technologies with diversifying characteristics. From a ambulatory client revel in perspective, the aforementioned one lets in the gadget to optimize battery lifestyles through intelligently managing the whereabouts energy plus accuracy trade-offs primarily based totally on to be had sensor abilities. This is useful for ambulatory platforms that allow several third birthday party petitions to run on the platform, however at the identical time should ensure long battery lifestyles for suited enjoyer experience. To realize the above goal, we expand an approach based totally normally on two observations. First, neighborhood letters do now not constantly lack the highest available talent, much like that furnished with the aid of GPS in open sky view positions. The performance shortages differ due to the fact the patron moves and we will take advantage of the slack in required skill to store dynamism. Second, a buzz has a couple of modalities to feeling station apart starting with the

SYSTEM OVERVIEW:

CONTROLLER - LPC2148:

LPC stands for low power consumptions which is a 64 bit processor and with 64 pins. It consists of 2 ports port0 and port1and each port consists of 32 pins. In port0 we are using all pins in port1 we are using only 16 pins and remaining are used for future purpose

Features:

1. Two serial communications uart0 and uart1: for serial communication purpose
2. Two converters dace and ad: to convert analog information to digital and vice versa
3. On board memory ram and room: for storage purpose
4. Timers: to generate clock signal
5. PWM modulator
6 .It follows ARM7TDMI architecture
7 . Two ports port0 and port1.
8. 64 bit instruction set.
9. It follows RS logic levels

SENSORS:

1. SMOKE SENSOR:

The Grove Fuel Sensor (MQ2) is an invaluable unit for detecting fuel leaks (homes and projects). It is compatible to detect H2, LDPE, CH4, KO, alcohol, smoke or propane. Due to excessive sensitivity and rapid response time, the dimension can be taken as soon as possible. The sensitivity of the sensor will also be adjusted with the help of the voltage

There are 4 kinds of gas sensors, every can detect different type of gas, here we use a table to illustrate

Sensor	Gas Type
MQ2	Combustible Gas, Smoke
MQ3	Alcohol Vapor
MQ5	LPG, Natural Gas, Town Gas
MQ9	Carbon Monoxide, Coal Gas, Liquefied Gas

TEMPERATURE SENSORS (LM35)

Sequence LM35 are precision temperature sensors of the integrated circuit, the output voltage is proportional to the temperature in writing Celsius (C). Therefore, the LM35 has rated temperature sensors calibration temperature linear in degrees Kelvin, because it will not be necessary that the person who put up a great effort by a regular output to receive the scale percentage is useful. LM35 does not require any external calibration or trimming to provide normal accuracy of ± 1/4 ° C at room temperature and ± 3/4 ° C throughout the five to + one hundred and fifty degrees Celsius temperature range. Low loads are guaranteed with the help of trimming and gauging at the chip level. And, the low impedance linear output LM35's, and the characteristic calibration inherent to the communication make readings or control circuits, basically easy. It can be used with single feed screen, or with more and less gifts. As it drives 60 µA more efficiently than supplied, it has a very low self-heating, less than zero. 1 ° C in the air with him. LM35 work is rated

more than five to five degrees Celsius at + one hundred fifty degrees Celsius, while the LM35C score -forthe Â ° to + one hundred and ten Â ° C variety (grade -10a with multiplied) accuracy. The LM35 series is in a plastic packed package to the ninety-two packet transistor package. And LM35D can also be available in the surface of eight lead mount small package definition and plastic packaging -220.

LDR:

A picture resistor or Light Dependent Resistor or CdS (Cadmium Sulphide) Cell is a resistor whose resistance decreases with increasing incident light depth. It additionally may be called a

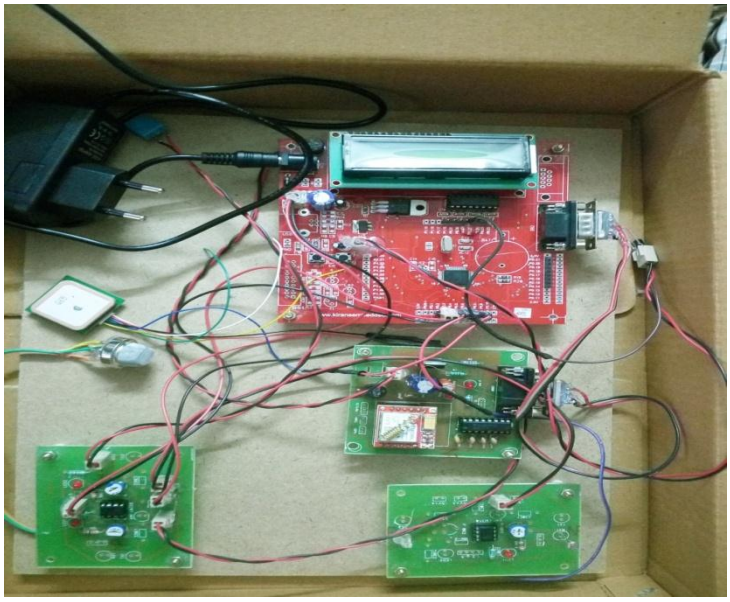
Photoconductor.

A photograph resistor is product of a high resistance semiconductor. If light falling on the tool is of excessive sufficient frequency, photons absorbed by way of the semiconductor give sure electrons sufficient energy to leap into the conduction band. The resulting free electron (and its hollow accomplice) behavior energy, thereby reducing resistance

HUMIDITY SENSOR:

Moisture is the presence of water in the air. The amount of water vapor in the air can have an effect on human ease as many good manufacturing tactics in industries. In addition to the presence of water vapor affects more than a few physical, chemical and organic methods. The dimension of moisture in industries is important on the basis that it will have an impact on the product's price of business, welfare and protection of staff. Thus, the moisture sensor is mainly, especially within the systems of manipulation of industrial techniques and human therapy.

GPS SENSING NODE:



It consists of six main modules power supply , lcd display ,sensors, gps receiver, microcontroller and gsm .

1. In place of power supply we are using 9v ac to dc adapter which converts 230v ac supply into 9v dc voltage.
2. Sensors are activated whenever the external environment condition get

changed those are humidity , temperature, smoke and light and sends those information to the controller.

3 .gps receiver continuously monitors the location of device when it is in moving state and sends those information to the controller

4. LCD display is the output device which display the information sent from the controller

5. GSM sends the message to registered mobile number when ever gets the command from the controller.

6.we are using lpc2148 microcontroller as the processor which works according to the code dumped during the coding phase main function of controller in this project is it sends a message to data center whenever the sensors parameters changed from specified values .the message consists of changed parameter followed by longitude and latitude values of the location.

For example if the ldr is activated if it sends a signal to the controller the controller generates a message LDR:off and latitude and longitude values

RESULT:

DISCUSSION:

This paper focuses on the sensor and cloud service designs of system. But in real applications, some related aspects must be considered as well Communication. In real applications, the GPS samples must be sent to the cloud. There are many ways to do this. In the previous discussion, we assume that either the device can be connected to a computer to upload the data via a USB port, or the micro-SD card can be retrieved for post processing. In those cases, no communication energy is needed in the untethered mode. In other cases, if the mobile device returns to a known location, e.g. human homes, animal nests, or known paths, one can set up radio infrastructure to retrieve the data. Bluetooth, Bluetooth Low Energy (BLE), and IEEE 802.15.4 (e.g. ZigBee) are all possible low-power communication solutions. These radios typically use 10 mW transmission power. The actual choice may depend on the

range, data volume, and cost constraints. WiFi, cellular network, or FM radios are also possible for longer range communication. These radios typically run at more than a few hundred milliWatts active power, and often require substantial start-up energy. In these cases, depending on how much this energy expense is amortized by the amount of data in a single upload session, the energy benefit of cloud-offloaded GPS may be diminished by communication cost. _ Time-Synchronization. This paper designs an incrementaltime-synchronization approach to leverage derived time stamps from GPS samples. This requires the real-time clock on the device to run continuously. In applications where this is not possible or is undesirable, one may consider a device-independent time-synchronization design. In , we designed a solution based on WWVB radio broadcast. WWVB signals can be received with very low energy. However, it required a large antenna, which adds size and weight to the sensors.

FUTURE WORK:

Future work is developing The cloud portion of GPS, called LEAP, has two main responsibilities:

1. To update and maintain the ephemeris database,
2. To compute receiver locations given GPS raw data.

We implemented these services on the Windows Azure cloud computing platform to achieve high availability and scalability

location LEAP is a web service that has three main components : a request receiver frontend, a localization service,and an ephemeris service. The request receiver is the front end of the service, implemented as an Azure Web Role. It receives raw GPS traces from clients, together with a time stamp, parameters for sensor configuration, and an optional reference location. Because satellite acquisition is time-consuming, LEAP is implemented as an asynchronous service. It en queues each sample for acquisition and location processing and returns a request ID to the client, which later queries the web service with this ID to obtain the computed location result for the sample. Each sample is one point main future wok and extension possible for this project.we named this as LEAP service designing a circuit for the cloud off loading is the as LEAP service

CONCLUSION:

We designed a system which is useful in environments where , either human entry is difficult or automatic updating of information is required which provides raw data of information which is used for post processing for location determination .The information is in the form of latitude

and lagitude values by using a node called cleon whenever the external parameters get changed are sensed by the sensors and the simultaneously location value is determined by the gps receiver is updated in data center by using gsm module .

REFERENCES

[interesting future work.1] L. Aalto, N. Gothlin, J. Korhonen, and T. Ojala. Bluetooth ¨ and WAP push based location-aware mobile advertising system. In MobiSys, pages 49–58, 2004.

[2] M. Azizyan, I. Constandache, and R. Roy Choudhury. Surroundsense: mobile phone localization via ambience fingerprinting. In MobiCom, pages 261–272, 2009.

[3] P. Bahl and V. N. Padmanabhan. RADAR: an in-building RF-based user location and tracking system. In INFOCOM, volume 2, pages 775–784, 2000.

[4] J. Barrus. Geofi: Global positioning for wifi-enabled devices. In Ignite Where and Lauch Pad at Where 2.0, May 2008.

[5] Bluetooth Specification. http://www.bluetooth.com/. [6] I. Constandanche, M. Sayler, S. Gaonkar, R. R. Choudhury, and L. Cox. Energy-aware localization using mobile phones. In Poster, ACM MobiSys, June 2008.

[7] T. Farrell, R. Cheng, and K. Rothermel. Energy-efficient monitoring of mobile objects with uncertainty-aware tolerances. In IDEAS ’07: Proceedings of the 11th International Database Engineering and Applications Symposium, pages 129–140, 2007.

[8] S. Gaonkar, J. Li, R. R. Choudhury, L. Cox, and A. Schmidt. Micro-blog: Sharing and querying content through mobile phones and social participation. In ACM MobiSys, June 2008. [9] Google Inc., Android developers reference: Locationmanager. http://developer.android.com/. [10] M. Gupta, S. S. Intille, and K. Larson. Adding gps-control to traditional thermostats: An exploration of potential energy savings and design challenges. In Pervasive ’09: Proceedings of the 7th International Conference on Pervasive Computing, pages 95–114, Berlin, Heidelberg, 2009. Springer-Verlag.

[11] M. Kamvar and S. Baluja. Deciphering trends in mobile search. Computer, 40(8):58–62, 2007.

[12] M. B. Kjærgaard, J. Langdal, T. Godsk, and T. Toftkjær. Entracked: energy-efficient robust position tracking

for mobile devices. In MobiSys, pages 221–234, 2009.

[13] J. Krumm, G. Cermak, and E. Horvitz. Rightspot: A novel sense of location for a smart personal object. In Fifth International Conference on Ubiquitous Computing (UbiComp), pages 36–43, October 2003.

[14] J. Krumm and E. Horvitz. Predestination: Inferring destinations from partial trajectories. In UbiComp 2006: The Eighth International Conference on Ubiquitous Computing, Orange County, CA, USA, September.

[15] A. Kupper and G. Treu. Efficient proximity and separation ¨ detection among mobile targets for supporting location-based community services. SIGMOBILE Mob. Comput. Commun. Rev., 10(3):1–1