Automatic Electricity Bill Generation

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Abstract: Electricityisthebasicneedsofourlife. We can'timagineonemoment ofourlifewith outelectricity. Preventionofelectricitytheft andsavingofelectricityisrequiredtousethe electricitycontinuously.Inthispaper,wepro-posed automatic electricity bill generation.This replaces the previous methods of generatingelectricity bill like

1. An electrician comes to the house, take thereadings from the energy meter and generate bill from the bill calculator
2. In this method their will be a transreceivertion. with an micro controller at one place and eachmeter readings of all the houses areting itself. taken and bill is generated, this bill is taken to the housesby a person
3. In this method we use gsm or gprs for sending the information about the electricity power co-nsumption, amount to be paid for the power through sms
4. Recently we have a prepaid method of generating the bill for saving the power consumption In the above methods the person is needed to de-liver the bills or in some cases which uses network their will be network problems. We have proposed a new method called automatic electricity bill gener In this the bill is generated near the energy-meter itself at the start time of the month by calcula

Introduction

Previous methods:

Method 1
In this method an electrician carries the bill calculator paid by the customer and print the details,handover which is used for generation of electricity bill, take the bill to the customer. The readings from the the readings from the energy meter and enter the read energy meter are the units of power consumed by ings in the calculator for calcuting the amount to be the customer.
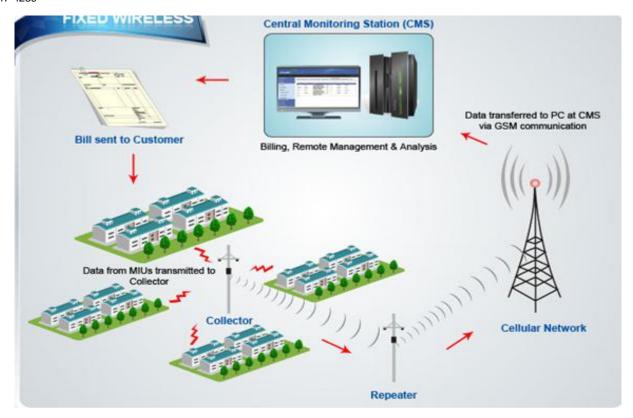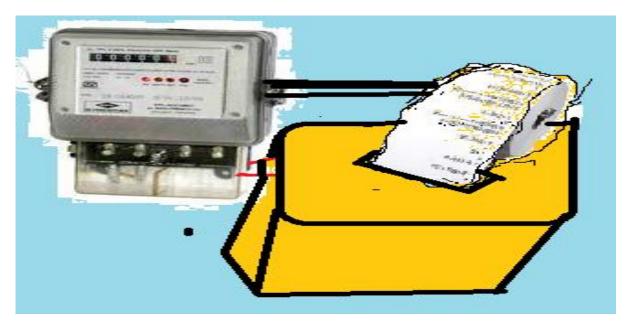
Energy MeterBill calculator

Method 2
In this method the readings of the energy meter are their the bill is generated by the computersystem takenwirelessly bytransreceiver with an microcontand it is sent to their respective houses by the roller usingGSM network to the electricity office, person

Proposed method:

In the above figure there was a box connected near the energy meter in which the electricity bill is col lected after the automatic calculation every month. The energy meter is connected with the mini bill c alculator which can calculate automatically after p rogramming. There was a printable papers connect ed to the calculator on which the details of electrici ty consumed and the amount to be paid are printed. When we newly connect the energy meter itself. Th e date and time it is started is feeded into the energy meter.

The energy meter will be programmed in suc h a way that when the month in the date (of format dd/mm/yyyy) is changed then calculator starts calculating automatically by retrieving the data from the energy meter automatically and it is printed on the printable paper with the readings as units of power consumed, the total amount to be paid by the customer aselectricity bill. The energy meter has also have an wireless connection with the payment department of electricity so that the previous balance amount that is not paid or the pending amount to be paid, the fine amount for late payment of bill in previous months can also be calculated and included in the total amount to be paid

Advantages of the proposed model:
This model reduces the work of the person to come to each and every house and calculate the power con sumed. So that he can concentrate on some otherwo rk. It reduces the strain of an electrician for Moving to each house, generating electricity bill and handov ering the bill to owners of that house. In the previous methods we also have an problem that sometimes the persons belonging to their respective houses may not be present at the time of handover of bill.So, that the bill distributor must come number of times n to handover the bill. But through the proposed method the bill willbe taken into the box so that it can be taken atany time from the box for payment

The formulae for calculating the electricity consumed and its cost was

Energy consumption calculation
The energy E in kilowatt-hours (kWh) per day is equal to the power P in watts (W) times number of usage hours per day t divided by 1000 watts per kilowatt:

$$E_{(kWh/day)} = P_{(W)} \times t_{(h/day)} / 1000_{(W/kW)}$$

Electricity cost calculation
The electricity cost per day in dollars is equal to the energy consumption E in kWh per day times the energy cost of 1 kWh in cents/kWh divided by 100 cents per dollar:

$$Cost_{(\$/day)} = E_{(kWh/day)} \times Cost_{(cent/kWh)} / 100_{(cent/\$)}$$

C++ Program To Find Electricity Bill Of A Customer.

```
unit                              tarrif
>100 RS.1.20 per unit
>200 RS.2 per unit
>300 RS.3 per unit
#include<iostream.h>
#include<conio.h>
class ebill
{
private:
int cno;
char cname[20];
int units;
double bill;
public:
void get()
{
cout<<"Enter Customer No,Name and No. of Units" <<endl;
cout<<"Enter Customer No : ";
cin>>cno;
cout<<"\nEnter Customer Name : ";
cin>>cname;
cout<<"\nEnter No. of Units used : ";
cin>>units;
}
void put()
{
cout<<"\nCustomer No is : "<<cno;
cout<<"\nCustomer Name is : "<<cname;
cout<<"\nNumber of Units Consumed : "<<units;
cout<<"\nBill of Customer : "<<bill;
}
void calc()
{
if(units<=100)
bill=units*1.20;
else if(units<=300)
bill=100*1.20+(units-100)*2;
bill=100*1.20+200*2+(units-300)*3;
}
};
void main()
{
clrscr();
ebill p1;
p1.get();
p1.calc();
p1.put();
getch();
}
```

Conclusion

So the proposed method, we can save the Energy of the electrician to come to each and every house and can also reduce his energy for handovering the bill to the customer.

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