



Smart Energy Monitor

By:

Alaa Samir
Bassant Ahmed
Merit Vector
Sohayla Mohamed

Aya Ashraf
Hanan Elkhateeb
Rita Samir
Yomna Eldawy

Outline

1. What is Smart Energy Monitor (SEM)?
2. Why SEM?
3. Difference between SEM and energy meter
4. How SEM works?
5. Costs
6. Instructions for use



What is Smart Energy Monitor?

Smart Energy Monitor is an electronic device used in tracking monthly amounts of electricity consumed in houses. Using data collected in a certain period of time, Smart Energy Monitor can detect when energy consumed reaches a high level and then triggers an alarm. It can also estimate monthly electricity bill using data from previous months.



Why SEM?

The aim of SEM is to show you where you might be wasting energy unnecessarily so you can change your habits and cut costs.

As a general rule, the sort of saving you might expect to generate by using SEM to help alter your behaviour is around 15% off your electricity bills.

Using SEM, you will be able to see how changing the way you do things has an impact on your energy usage to give you an idea of where you can make the biggest savings.



Difference between electricity meter and SEM

1. Electricity Meter

Electricity meter is that piece of equipment living alone, tucked away in the dark, dusty cupboard under the stairs.

The ones you only ever think about when someone comes round to read it every now and then.

It is almost impossible to get precise data from an electricity meter unless you are an expert.



Difference between electricity meter and SEM

2. SEM

Unlike electricity meter, SEM is An energy monitor – or an in-home-display (IHD) as it's sometimes called – is a handy, little device that shows you exactly how much energy you're using in your home.



Difference between electricity meter and SEM

2. SEM

SEM will let you see your current and past energy, and even let you set yourself a monthly energy budget. Once configured, you'll be able to see, day-by-day, whether you're on track to come in under, or over, budget for that month. That way you won't end up with any nasty surprises when your monthly bill arrives.



How SEM works?

SEM consists of two main components:

1. Loads Component

This component is connected to each load in parallel, with a switch connected to each load. When the switch is on, the related data will be displayed.

2. Display

This component is an LCD that displays the data we desire. This data could be:

- a. Energy consumed.
- b. Electricity bill estimation.



Instructions for Use

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- 01 Connect all your devices to the Loads component
 - 02 Turn on the switches connected to the devices you wish to measure their consumption
 - 03 Read energy consumption and money costs on the Display component (LCD screen)

Costs

Planned:

Item	No of Items	Price/Item
Arduino	2	120 L.E
PCB Double Layer Board	1	20 L.E
ACS712 Sensor	1	60 L.E
AVO	1	95 L.E
Wires	15	0.5 L.E
Breadboard	1	18 L.E
LCD	1	35 L.E
Resistance	5	0.25 L.E
LED	3	0.25 L.E
Potentiometer	1	2 L.E
Keypad	1	25 L.E
Total	32	504.5 L.E

Costs

Actual

Item	No of Items	Price/Item
Arduino	1	--
ACS712 Sensor	1	50 L.E
Wires	12	0.5 L.E
Breadboard	1	--
LCD	1	35 L.E
Resistance	4	0.25 L.E
LED	3	0.25 L.E
Battery	1	15 L.E
Total	24	107.75 L.E

Thank you!

Any Questions?

