

Cell Phone Battery along with Natural Resources

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Abstract— All people are conscious about the cell phone and its services by different ways. Example: Communication, GPRS, Entertainment, etc. In this paper suggest a model based on the scope of power consumption. A damaged out battery or a lost charge is the two glooms every cell user faces. To overcome this a new technology can be adopted to charge the cell phones with the help of human speech, nano scale vibrations in human body, room and human body temperature in to electrical energy and solar. The variation in sound converted into electricity allowing a cell to be powered up while its user has conservation over it. Microphone type transducer use to covert voice signal in to electrical signal. Silicon nanowires that convert heat into electricity using a thermoelectric effect, one possible use of these is to charge portable devices. The wires could be simply be knit as the panel of cell phone and thus the panel could become a charging station. Using the body temperature and room temperature as the source of energy, it could generate the electricity. Cell phone cover is of solar plan.

Key words: Human Speech, Nanowires Thermoelectric Devices Piezo Electric Generator, Mobile Phone, Transducer, Microphone, Solar

I. INTRODUCTION

The sound that always survives in our everyday life and environments has been overlooked as a source. Power generation by turning sound energy from speech, music or noise into electrical power; also we could convert the human activities, room and body temperature, solar panel. We are going to charge the mobile phones using following methods.

- 1) Using voice signal
- 2) Using human activities
- 3) Using human body temperature and room temperature.
- 4) Using Solar body

II. PROPOSED METHOD

A. Using of voice signal

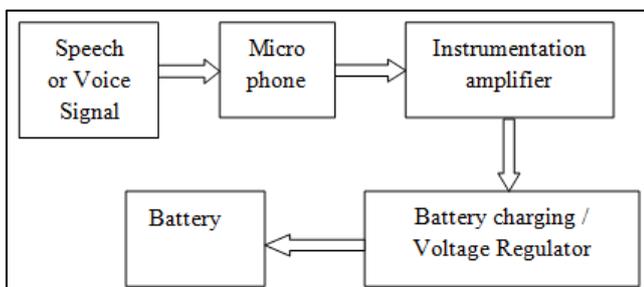


Fig. 1: Block diagram of the proposed system

We know that transducer is used to convert any form of energy into electrical energy. Instrumentation amplifier is used to increase low amplitude of signal to applicable one. Voltage regulator provide constant voltage for charging battery.

B. Speech signal or voice signal

The mobile communication we are using two type of communication:

- 1) Voice communication.
- 2) Non voice communication

We are only constricting on voice communication. The help voice signal only we are charge the mobile phone

C. Micro phone

Microphones are a type of transducer which converts energy from one form to another. Microphones convert sound waves (energy) into electrical energy and vice versa. Different types of microphone have different ways of converting energy but they all share one thing in common [1].



Fig. 2: Location of Microphone Diaphragm

When the diaphragm vibrates, it causes other components in the microphone to vibrate. These vibrations are converted into an electrical current which becomes the audio signal.

1) Using of Nano Piezo Electric Generator:

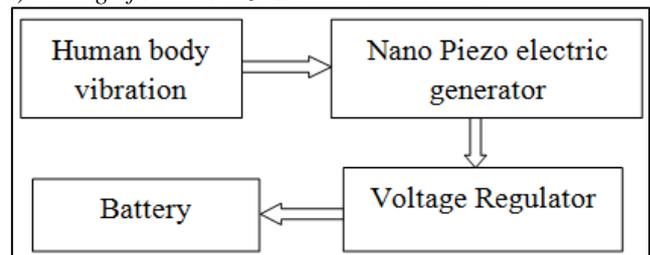


Fig. 3: Block diagram of piezo electric generator

2) Human body vibration:

The human body any time having a nano scale movements or vibration in body. The nano scale vibration is we are converting the electrical energy with help of nano piezo electric generator [2].

D. Nano Piezo Generator for Cell Phones Construction:

Our innovative idea is to create a nano generator (NANOGEN) for cell phones, efficient enough to supply power to the battery whenever the phone vibrates and by converting the room temperature to electricity, thereby extending the hold of charge in it.

It consists of two plates made of NANO GOLD, sandwiching a bunch of nano wires of ZINC OXIDE [5].

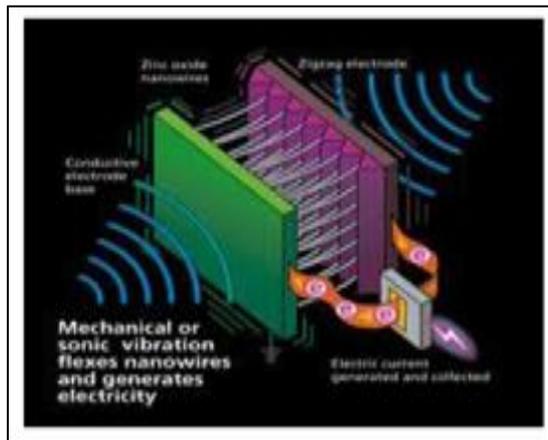


Fig. 4: Nano piezo generator

Two leads arise from the either plates and constitute the output electrodes from which the electric energy is obtained.

$$n \cdot d = A$$

Where “n” is the number of nano wires of diameter “d” constituted in the given area “A” of nano gold plates.

Since the diameter of nanowires range from 50 nm to 100 nm, the number of wires in the nano generator of dimension 1 cm X 1 cm ranges from 1000 to 2000. This setup when subjected to a deformation of 10° gives rise to a potential difference of 3v to 6v.

E. Solar

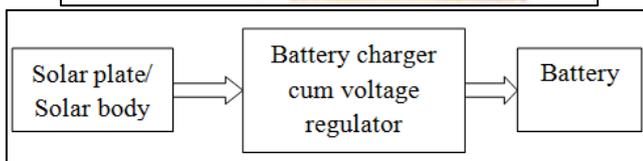


Fig. 5: Solar based cell battery charging system

Nokia developed solar based cell phone. The most substantial challenge is the limited size of a phone’s back cover, which restricts the extent to which the battery can be charged. What’s more, to ensure mobility, it is essential that the phone’s weather protection doesn’t cover the solar charging panel.

III. METHODOLOGY USED

The nanogen works based on the principle of piezo electricity. But the only difference is that it works at nano scale. The nano generator so produced will be of 4 mm thick to the maximum. So it will be comfortable to accommodate the nanogen within the cell phone. Whenever the cell phone vibrates, the nanogen will be put to mechanical distortion at a constant and low frequency. The nanogen being sensitive

even for low frequencies and lower degrees of distortion, it generates a potential difference by the concept of piezo electricity. The nano gold plates assist in collecting current from those nano wires. Gold behaves as an excellent conductor with negligible resistance at nano scale. Hence the output of the nanogen in response to the mechanical vibration will be a potential difference of the order of 3 to 6 volt.

This potential difference is of DC type and hence can be directly used for charging up the battery of the mobile phone .And same the formatter block and voltage regulator block.

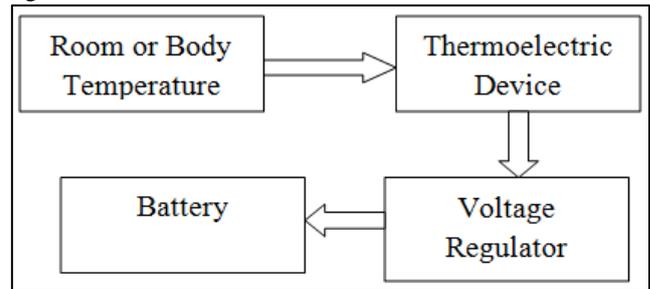


Fig. 6: Block diagram of thermoelectric devices

A. Room and body temperature

Normally human body having temperature at 370 c, and also room also having some temperature at 250c .we are combing the both human and room temperature it come around 620 c. It’s very temperature so we are converting the heat energy in to electrical energy.

B. Silicon nanowires convert room c temperature to electricity

The proposed project uses a special material which converts the difference between temperatures through a device into a variable voltage which intern used to charge a mobile with anominal operating voltage.

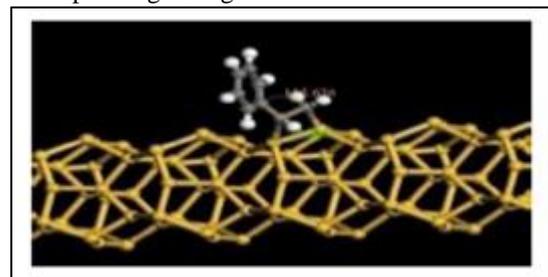


Fig. 7: Structure of silicon nanowire

The nature of bulk silicon is poor thermoelectric property at room temperature, but it can be substantially reduced by silicon nanowires without reducing electrical conductivity [5]. It is possible to get low values of ZT (<1) by decreasing the wires diameter.



Fig. 8: Silicon nanowires

Thus we see that the thermo nano generator can take any shape viz knit up nanowires, nanoporous silicon films, and even an arrangement similar to the piezo nanogenerator wherein there are two plates maintained at different temperatures and the thermoelectric nanowires sandwiched between them.

University of California Berkeley created arrays of tiny silicon nanowires by dipping silicon wafers into an aqueous solution of silver ions[5].

The diameter of the nanowire used is approximately 30 to 300 nano meter. These type of nanowires produce an efficiency of 85%, which is very much greater than the previous methods. This is achieved even at room temperature. This rise in efficiency occurs due to the heat-carrying sound waves called phonons have a very narrow nanowires, An important advantage of the thermoelectric nanowires is its rough surface which gives proper contact with the electrode. Now that we have an efficient thermoelectric nanowire, we can convert room temperature and body temperature to electricity.

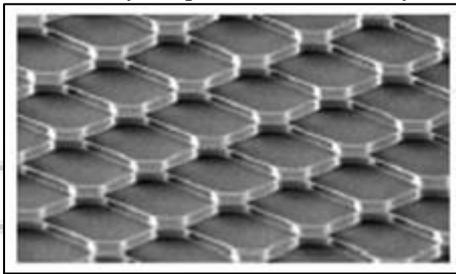


Fig. 9: Image of the silicon nanowires

C. Wind Energy:

Proposed block diagram of wind energy based mobile battery charging and battery applications. This technology can help to meet the emergency power requirement when grid electricity is not available.

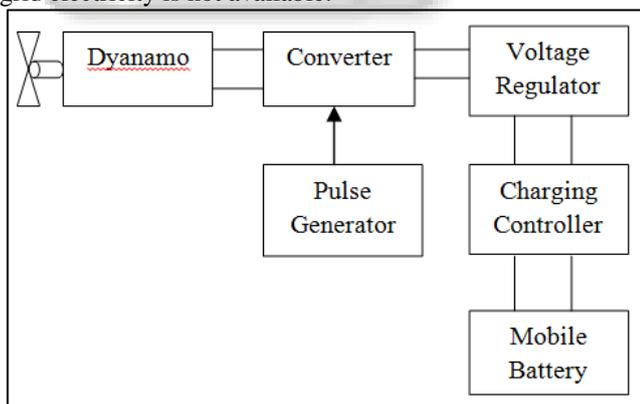


Fig. 10: Block diagram of Wind driven mobile battery charger

IV. CONCLUSION

This concept of nano piezo generator and nano thermo generator, using nano wires will go a long way in eliminating adapters to charge cell phones. Moreover energy loss in a cell phone can be used to charge the battery and thereby prolonging the stand of charge in cell phone. So we have to propose the to covert model implement the above three methodology using voice signal, using human

activities, using human body and room temperature. The tensile strength of the nanoporous silicon nanowires will provide a strong casing for the cell phones. The main advantages of the proposed method are less noise, error-free network and no need for external power source. The nano generator adds neither to the weight of the cell phone nor to the cost. Thus wireless mobile charging using nanotech would be a niche in the history of mobile technology

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