CHAPTER3

REDUCING POWER CONSUMPTION

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Reducing Power Consumption

3.1 Cluster head formation

In the LEACH protocol nodes organize themselves into clusters one node acting as cluster head, nodes transmit to cluster head and cluster head sent to base station this protocol changes the cluster head at every round it replaced and whole cluster formation process is undertaken. LEACH protocol is modified by introducing efficient cluster head scheme it is threshold in cluster head formation for every next round, if existing cluster head has more energy than required threshold it will remain cluster head for next round if a cluster head has less energy than threshold it will be replaced according to LEACH algorithm which is mentioned in chapter2.

The threshold value for every node contending to be cluster head must be suitably chosen as a function of the following parameters:

(1) The residual battery power

(2) The power needed for transmission

(3) The transmission time t [16].

3.2 Dual power level

In adaptive clustering hierarchic there can be three kinds of transmissions

- Intra cluster transmission.

  Cluster member’s sense data and send it to cluster head.

- Inter cluster transmission.

  Communication between two cluster heads.

- Cluster head to base station transmission.

LEACH uses the same power level for inter and intra transmission in our modified leach we are used two power levels to reduce the packet drop ratio collisions/interference for other signals [16].

3.3 Effect of soft and hard threshold of EN-MOD LEACH

Hard threshold which is the threshold value of the sensed attribute and a soft threshold, which is a small change in the value of the sensed attribute that triggers the node to switch on its transmitter to transmit. Thus the hard threshold tries to reduce the number of transmissions by allowing the nodes to transmit only when the sensed attribute is in the range of interest. The soft threshold further reduces the number of transmissions that might have otherwise occurred when there is little or no change in the sensed attribute. A smaller value of the soft threshold gives a more accurate picture of the network, at the expense of increased energy consumption. Thus, the user can control the trade-off between energy efficiency and data accuracy. When cluster-heads are to change new values for the above parameters are broadcast [16].

Hard Thresholdvalues are varied for transmitting data to the cluster head soft threshold is fixed, (s) =2.

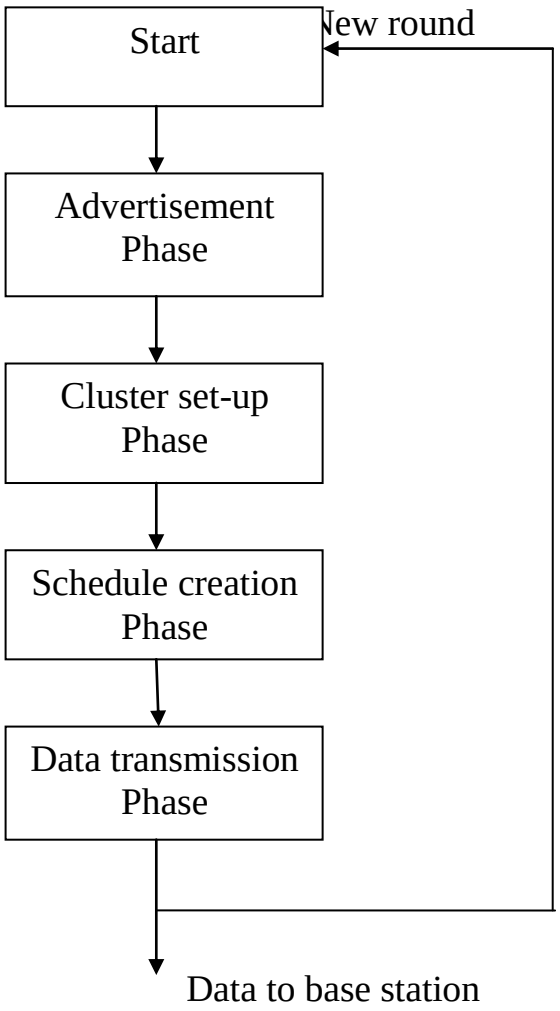

Figure 3.1: LEACH algorithm flow chart

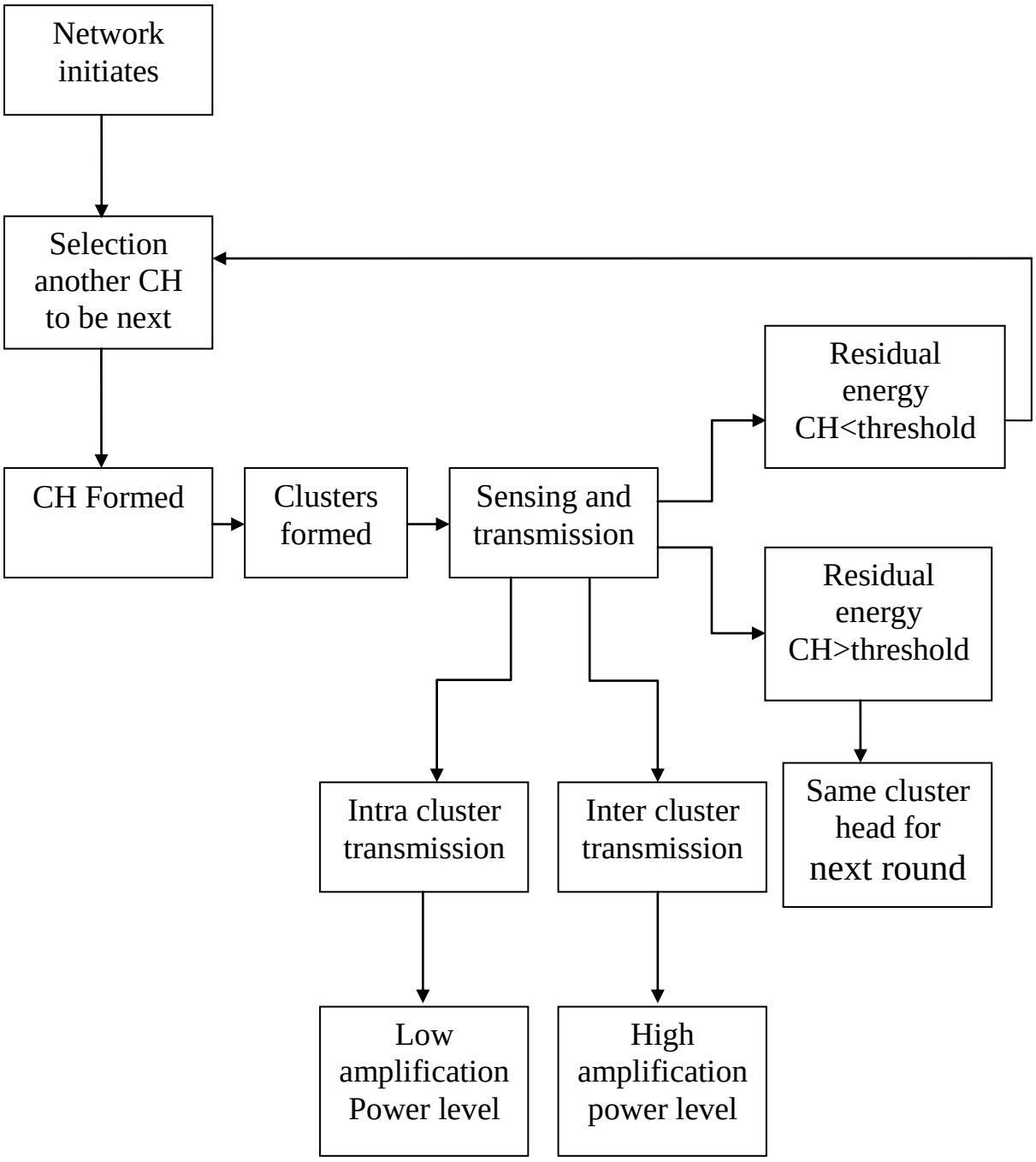

Figure 3.2: EN-MOD LEACH algorithm flow chart