When the device serves the CH to the last, this decision is taken into account. The device that has been unable to become a CH for a long time recently elects itself to be the CH. The CH notifies its neighbours of the data packet received from the CH before it. Whichever is not a cluster header will receive the packet with the highest receive signal. Devices that are members of the head cluster will declare themselves as such and are bound into this packet containing the addresses of these devices. The number of organs or organs that they have, as well as their addresses, are known after the CH installation phase. The cluster header whose work is organized is the TDMA protocol, and the CSMA protocol is chosen at random, and the TDMA table is sent to the cluster members, after which it enters the stand-alone phase. The data is sent as follows during this phase. All devices begin sending data to the CH in an orderly fashion via their sites and the TDMA protocol. This transmission will be the most energy efficient. The TDMA protocol arranges the device locations, and this is the device with the lowest power consumption. When the CH receives all of the data, it collects it and send to the BS. Instead of each node sending data to the BS, LEACH can collect data locally in each cluster and save a lot of energy in the process of transmitting data to the BS. The CH is chosen at random, with no regard for power consumption. It is unable to cover large areas. In the LEACH protocol, each head of a cluster is associated with the main station, and there is no problem in the space between the CH and BS. And CH will gather great energies if the distance is far. On the other hand, The LEACH protocol can select the best path between the CH and BS, and data is sent to the BS along that path. [12].

3.2. *Result and performs analysis*

The simulation model and results demonstrate the new algorithm's performance analysis and comparison with LEACH, LEACH-C, and IEE-LEACH for network lifetime observing, among others. Table 2 shows the parameters used in the experimental work for the four schemes LEACH, LEACH-C, IEE-LEACH, and ICHS.

Parameters	Vales
WSN-area	50m*50m
WSN Nodes NO.	100
Packed Size	500 Byte
Initial Energy	2J
E-ELEC(TX and RX)	50*10-9J/Bit
Eamp	100*10-12J
Broadcast Mesg. Size	100 Bytes

Table 2. Parameters and vales.

Figure 2 shows the total network energy obtained by plotting against each round, which is the sum of all sensor node residual energy.Even after hundreds of runs with 100 sensor nodes, the residual energy level of the proposed scheme is higher than that of LEACH, LEACH-C, and IEE-LEACH schemes. The ICHS ensures that energy of CH of the block is higher than the group members, and by looking at the results of implementing the it, we find that the lifetime of the network continue for large periods. Furthermore, gateway nodes are chosen closer to the BS to reduce CH overload.

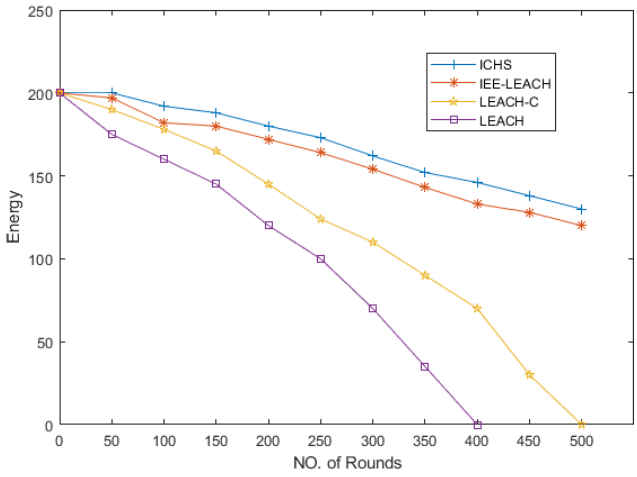

Fig. 2. Network energy over the simulation time.

Thus, the ICHS scheme contributes significantly more energy savings and has a longer lifetime for sensor nodes than DTx, LEACH, LEACH-C, and IEE-LEACH. The results of simulations between the proportion of nodes that died in each round and the number of rounds for several clustering methods, including LEACH, LEACH-C, IEE-LEACH and ICHS, are shown in Figure 3. The following rounds were chosen in order to make the simulation results more understandable: 45, 100, 150, 200, 300, 400, and 500.It is always obvious that each algorithm has a different percentage of dead nodes in each round. Applying the traditional LEACH method results in a high node death rate for each round, however the proposed strategy performs significantly better. This is a definite sign that the network life has increased in comparison to other algorithms during the simulation period.

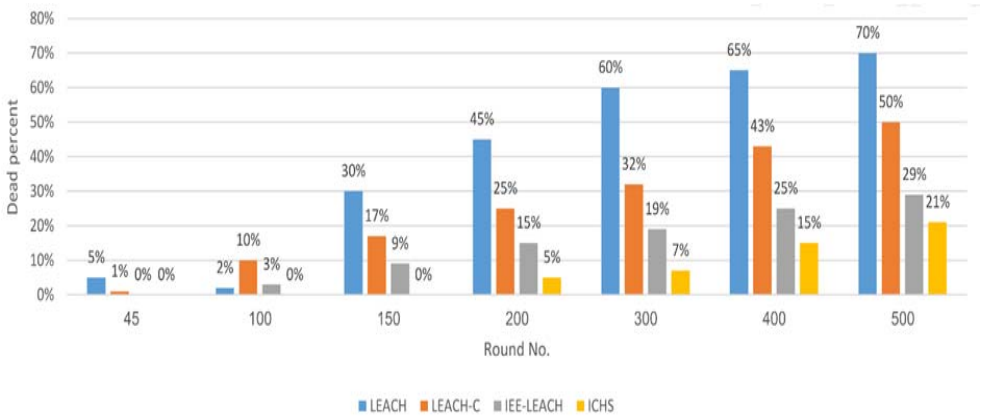

Fig. 3. Different percentage of dead nodes in each round.

The length of time between the beginning of the communication process and the beginning of the percentage of dead nodes increasing until the final dead sensor node can be referred to as the network lifetime in WSN. The round timeline is a key distinction between the proposed protocol, LEACH, LEACH-C, and IEE-LEACH, and the number of rounds is not fixed and is dependent on a specific time. The time between the start of the communication process and the start of the percentage of dead increasing until the last dead sensor node is defined as network lifetime in a WSN. As a result of the separation of cluster management during protocol operation, the behavior of clusters is not constant and is determined by the number of nodes in the cluster. This plan will control how long it takes nodes to become cluster leaders, which will affect the node's lifetime. Furthermore, When the setup stage is moved into a smart environment, the network lifetime is impacted because less communication is required during this stage and nodes are prevented from having to send their data repeatedly, as illustrated in Figure 4, which compares the LEACH, LEACH-C, and IEE-LEACH in terms of percentage rate of starting to dead the nodes.

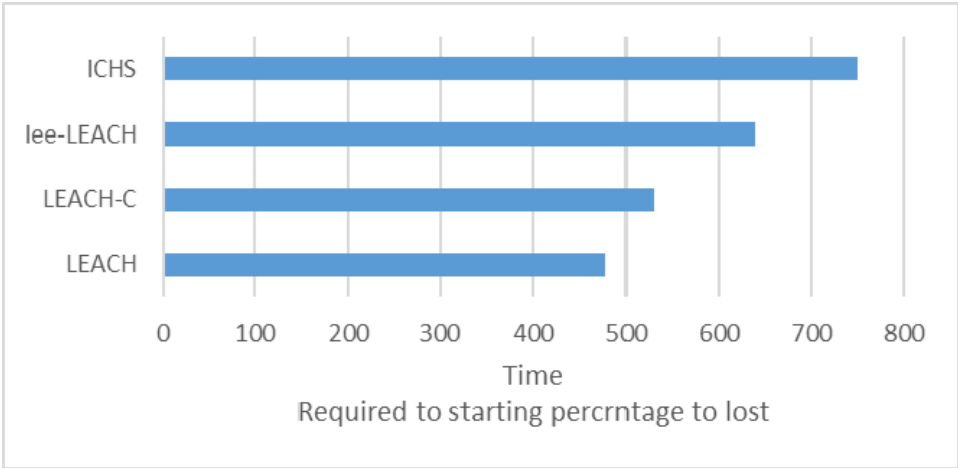

Fig. 4. Comparison ICHS with other algorithms.

Furthermore, When the setup stage is moved into a smart environment, the network lifetime is impacted because less communication is required during this stage and nodes are prevented from having to send their data repeatedly, as illustrated in Figure 4, which compares the LEACH, LEACH-C, and IEE-LEACH in terms of percentage rate of starting.

3.3. *Discussion*

To show the efficiency that fits this algorithm, the language (Matlab) was used because this language is characterized by showing accurate results. In this program, we are examining the wireless sensor network that operates on. firstly, data collection technology them organizing the (TDMA) time division multiple access, dividing and organizing arrival times. At the beginning of running the program, we note that the devices were deployed in a specific area in order to determine the area in which the sensors operate. The latter coordinates the work of the sensors and the main station. As the cluster header will reduce energy consumption by collecting and sending data, the cluster head's location will change to different places (locations) due to a lack of energy in it. Depending on the energy it possesses, another device is chosen to be another CH. When the energy in the CH is depleted, another device is chosen to serve as a CH. The connection between the sensor and the CH is shown by the light green path, and the data collected from a large number of devices is sent through the red path, rather than each device working alone to send data to the main station represented in red. Thus, this process continues on all sensors, and we note it is problematic for the sensors when the energy rate in them reaches 15% To 28%, it stops working, which is as shown by the black dots, and when all these devices stop working, the entire network stops. With this work, this network has performed the task perfectly, which is sensing and then sending data to the CH and collecting data therein and then sending it to the main station. The proposed algorithm increased network lifetimes in each of five case studies, and its use ensures that routes are chosen more quickly than with other algorithms that use the LEACH mechanism. After several iterations, the percentages of dead nodes in the network were significantly lower than those of the LEACH protocol and other methods, demonstrating the effectiveness of the current system.

4. Conclusions

The energy issue in WSN is still an active research area. The Implementation of the energy efficiency scheme in this structure that contains data routing, organizing the data with Synchronization of work, creating and organizing efficient algorithms that increase the life time of the WSN, reducing energy consumption, and writing down the basic functions of wireless network sensors for each model of the sensors in the network. Organizing the results that proved important in increasing the life of the network in the case of applying the appropriate algorithm for that and comparing them with the application of the inappropriate algorithm in increasing the life of the network.

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