**Developer report**

**Title:** Implementation Of Multihop Protocol With Cost Function For Decreasing Energy Consumption In Nodes.

**Title ID:** Here we need to mention Title ID of the Project.

**Objective of the Project**: The Multihop Protocol With Cost Function For Decreasing Energy Consumption In Nodes)is the proposed protocol reduces and balances the energy consumption of nodes.

**Development Procedure:**

A new technique to reduce energy use while increasing throughput.

Our contribution consists of the following:

The stability period of our proposed scheme is longer. Nodes are able to stay alive for longer periods of time while using the least amount of energy possible.

High throughput is aided by a long stability period and low node energy consumption.

To reduce energy consumption and increase network longevity, we employ a multi-hop topology. To identify the parent node or forwarder, we offer a cost function. The proposed cost function chooses a parent node with the highest residual energy and the shortest distance to the sink. The residual energy parameter balances energy consumption across sensor nodes, while the distance parameter guarantees packet delivery to the sink is successful.

**Execution Procedure:**

We deploy numerous nodes in a region under this scheme. The power and compute capability of all sensor nodes are identical.

Two nodes are chosen, and these two nodes will transport data directly to the sink.

During this phase, the sink sends out a brief data packet containing the sink's location in the area. Each sensor node stores the location of sink after receiving this control message. Each sensor node sends out a data packet that includes the node's ID, position in the area, and energy status. All sensor nodes are updated with the location of their neighbours and sink in this manner.We designed a multi-hop approach for WSN in order to save energy and increase network throughput. The conditions for a node to become a parent node or forwarder are presented in this section. Proposed protocol elects a new forwarder in each round in order to balance energy consumption across sensor nodes and reduce network energy usage.

The ID, distance, and remaining energy status of the nodes are all known to the sink node. Sink calculates all nodes' cost functions and sends them to all nodes.

Every node determines whether or not to become a forwarder node based on this cost function. If n is the number of nodes, the following is the cost function for n nodes:

Data is gathered and sent to the sink via the forwarder node, because the forwarder node has the most residual energy and travels the shortest distance to the sink, it uses the least amount of energy to send data there. Two chosen nodes interact directly with the sink and are not involved in data transmission.The forwarder node provides time slots to its progeny nodes using Time Division Multiple Access (TDMA) in this phase. Every child node sends its detected data to the forwarder node at a predetermined time. A node enters idle mode when it has no data to send. Only during transmission time do nodes wake up. The energy dissipation of individual sensor nodes is minimized when sensor nodes are scheduled. Performance metric of the proposed method is Energy consumption of nodes, here we use the residual energy parameter to study network energy consumption in order to investigate the energy consumption of nodes every round