

INFORMING BASE STATION AND DESTINATION NODE ABOUT CUTS IN WIRELESS SENSOR NETWORK

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ABSTRACT: *The problem of cuts in wireless sensor network leads to the partitioning of wireless sensor network into various regions. The main objective of this research paper is to informing about node failure in wireless sensor network. This research paper describes the message sending operation of our project work which informs the Base Station and Destination node about node failure in wireless sensor network. The operation takes values of cut position as an input which it receives from file transfer operation of our project. On the basis of cut locations, position of neighbor can be tracked which will help us to proceed to our objective of sending failure message to Base Station. In this way, Base Station receives message of failure and selects alternative route for data transfer in wireless sensor network. We hope that the process of message sending described by us will surely inform the base station and Destination node about cuts in wireless sensor network.*

INTRODUCTION

The problem of cut in wireless sensor network results in partitioning of network into various connected components. Due to this event, various problems occurs such as data loss, node's efficiency loss, etc.

This research paper describes the message sending operation of our project work. The message Sending operation takes the values of locations of cut as an input. This input has been received from file transfer operation of our project. The message sending operation sends message of node failure to source node and destination node so that each node in wireless sensor network will be alert. After receiving the message of node failure, base station takes necessary actions to recover partitions in wireless sensor network.

The main aim of this research paper is that informing Base Station and Destination node about cut in wireless sensor network so that Base Station will be alert and takes necessary action to remove cut. During data transmission, Base Station will select the alternative path to avoid data loss in wireless sensor network.

Sending message about node failure is a necessary step which solves the problem of network partitioning as well as brings a solution towards restoration of network connectivity.

This research paper is divides into two sections. Section 1 describes the message sending operation, Code of message sending operation and its description. Section-2 describes the Output of code, Objective of message sending operation and process of message sending. Rest of the paper is divided into conclusion and future work, acknowledgement and references.

SECTION-1

1. Message Sending Operation

1.1 Code:

```
int x=0;
int y=0;
print->("Informing Base Station about Cut");
for(i=0;i<7;i++)
{
    while(position[i]>0)
    {
        x=i;
        for(y=(x-1);y>=0;y--);
        print->("Send message to previous node in Backward Direction");
        break;
    }
}
```

```
System.out.print->("Informing Destination node about cut");
for(i=0;i<7;i++)
{
    while(position[i]>0)
    {
        x=i;
```

```

    for(y=(x+1);y<=7;y++);
    print->("Send message to next node in Forward Direction");
    break;
}
}

```

1.2 Description of Message Sending Operation:

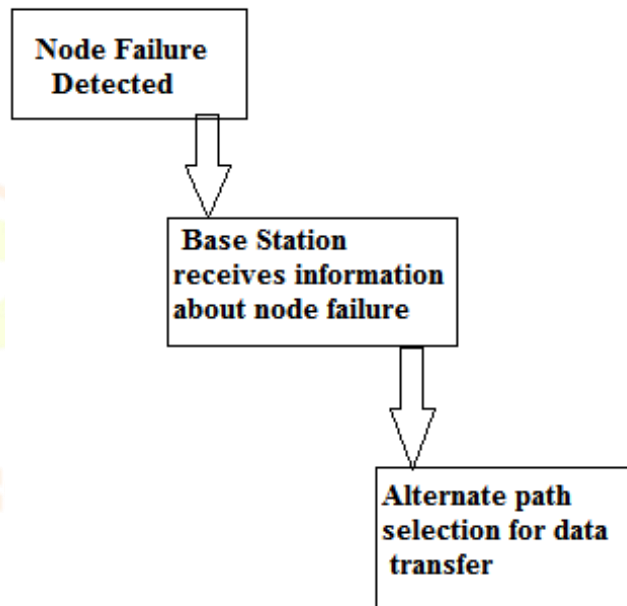
In Message Sending Operation, first of all, it will take the value of cut position returned by File Transfer function. By accessing the value of cut location, it will send message to source node and destination node about node failure. The values of cut location has been accessed by position array. Initially position array was taken empty. During execution of File Transfer Operation, values of cut location has stored in position array. Two positions (x+1) and(x-1) are the locations of neighbor nodes of failed vertex. (x -1) is the position of neighbor node before the position of failed vertex and (x+1) is position of neighbor node after the location of failed vertex. Two for loops has been taken for the purpose of informing the source node and destination node. Increment loop is used for the purpose of informing destination node. Decrement loop has been used to inform the Source node about cut.

SECTION-2

2.1 Objective of Message Sending Operation:

The main objective of Message Sending function is to inform Source node and Destination node about cut and its location in wireless sensor network. In this way, data leakage problem can be minimized. As a result, Source node will choose the alternative path for data transmission so that data will be transferred safely to its desired destination.

2.2 Process of message sending operation:



Block Diagram showing the process of Message Sending operation

Output of Code:

```

Administrator: C:\Windows\system32\cmd.exe
Informing Base Station about Cut
Send message to previous node in Backward Direction
Send message to previous node in Backward Direction
Send message to previous node in Backward Direction
Informing Destination node about cut
Send message to next node in Forward Direction
Send message to next node in Forward Direction
Send message to next node in Forward Direction
C:\Users\Aditya\Desktop\java_programs>
  
```

CONCLUSION AND FUTURE WORK

We have described our process of message sending operation briefly in this research paper. We finally conclude that sending message to source node and destination node about node failure is very necessary as it can help the base station to initiate the new or alternative path for data transfer. After sending message about node failure, network's connectivity can be restored. Extension of this work using Graphical User Interface is a part of our future work.

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