EXPERIMENT 12

PROBLEM DEFINITION:

Three wireless nodes are created and they are configured with specific parameters of a mobile wireless node. After creating the nam file and trace file, we set up topography object. set node_ ($i) [$ns node] is used to create the nodes. Location of the nodes is fixed by specifying X, Y coordinates. Z coordinate is always zero. Here we set the initial size for the every node by using initial_node_pos. AODV routing protocol is used here. $val(stop) specifies the end time of the simulation.

Code:

```
set ns [new Simulator]


# Creating trace file and nam file


set tracefd [open wireless1.tr w]

set namtrace [open wireless1.nam w]


# Define options

set val(chan) Channel/WirelessChannel ;# channel type

set val(prop) Propagation/TwoRayGround ;# radio-propagation model

set val(netif) Phy/WirelessPhy ;# network interface type

set val(mac) Mac/802_11 ;# MAC type

set val(ifq) Queue/DropTail/PriQueue ;# interface queue type

set val(ll) LL ;# link layer type

set val(ant) Antenna/OmniAntenna ;# antenna model

set val(ifqlen) 50 ;# max packet in ifq

set val(nn) 3 ;# number of mobilenodes

set val(rp) AODV ;# routing protocol

set val(x) 500 ;# X dimension of topography

set val(y) 500 ;# Y dimension of topography

set val(stop) 10.0 ;# time of simulation end


$ns trace-all $tracefd

$ns namtrace-all-wireless $namtrace $val(x) $val(y)


# set up topography object

set topo [new Topography]
```

```
$topo load_flatgrid $val(x) $val(y)


set god_ [create-god $val(nn)]


# configure the nodes
        $ns node-config -adhocRouting $val(rp) \
                    -llType $val(ll) \
                    -macType $val(mac) \
                    -ifqType $val(ifq) \
                    -ifqLen $val(ifqlen) \
                    -antType $val(ant) \
                    -propType $val(prop) \
                    -phyType $val(netif) \
                    -channelType $val(chan) \
                    -topoInstance $topo \
                    -agentTrace ON \
                    -routerTrace ON \
                    -macTrace OFF \
                    -movementTrace ON


## Creating node objects...
for {set i 0} {$i < $val(nn) } { incr i } {
            set node_($i) [$ns node]
      }
      for {set i 0} {$i < $val(nn)  } {incr i } {
            $node_($i) color black
            $ns at 0.0 "$node_($i) color black"
      }


# Provide initial location of mobile nodes
$node_(0) set X_ 50.0
$node_(0) set Y_ 50.0
$node_(0) set Z_ 0.0


$node_(1) set X_ 200.0
$node_(1) set Y_ 250.0
```

```
$node_(1) set Z_ 0.0


$node_(2) set X_ 300.0

$node_(2) set Y_ 300.0

$node_(2) set Z_ 0.0


# Define node initial position in nam

for {set i 0} {$i < $val(nn)} { incr i } {

$ns initial_node_pos $node_($i) 30

}


# Telling nodes when the simulation ends

for {set i 0} {$i < $val(nn) } { incr i } {

    $ns at $val(stop) "$node_($i) reset";

}


# Ending nam and the simulation

$ns at $val(stop) "$ns nam-end-wireless $val(stop)"

$ns at $val(stop) "stop"

$ns at 10.01 "puts \"end simulation\"; $ns halt"

#stop procedure:

proc stop {} {

    global ns tracefd namtrace

    $ns flush-trace

    close $tracefd

    close $namtrace

exec nam wireless1.nam &

}


$ns run
```

Output: