EXPERIMENT NO. 07

Aim - To simulate wsn using NS2/NSG2 for transmission between mobile nodes using UDP-CBR.

CODE-

```
#Experiment no - 07

#Aim - To simulate wsn using NS2/NSG2 for transmission between mobile
nodes using UDP-CBR.

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#6th Sem [B]

#Roll no - 51

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# This script is created by NSG2 beta1

# <http://wushoupong.googlepages.com/nsg>


#==================================
#     Simulation parameters setup
#==================================
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)     4                ;# number of mobilenodes
set val(rp)     DSDV               ;# routing protocol
set val(x)      1127               ;# X dimension of topography
set val(y)      500                ;# Y dimension of topography
set val(stop)   10.0                 ;# time of simulation end


#==================================
```

```
#       Initialization
#==================================
#Create a ns simulator
set ns [new Simulator]


#Setup topography object
set topo      [new Topography]
$topo load_flatgrid $val(x) $val(y)
create-god $val(nn)


#Open the NS trace file
set tracefile [open out.tr w]
$ns trace-all $tracefile


#Open the NAM trace file
set namfile [open out.nam w]
$ns namtrace-all $namfile
$ns namtrace-all-wireless $namfile $val(x) $val(y)
set chan [new $val(chan)];#Create wireless channel


#==================================
#     Mobile node parameter setup
#==================================
$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) \
          -channel      $chan \
          -topoInstance  $topo \
          -agentTrace    ON \
```

```
                -routerTrace    ON \
                -macTrace       ON \
                -movementTrace ON


#================================
#       Nodes Definition
#================================
#Create 4 nodes
set n0 [$ns node]
$n0 set X_ 394
$n0 set Y_ 305
$n0 set Z_ 0.0
$ns initial_node_pos $n0 20
set n1 [$ns node]
$n1 set X_ 550
$n1 set Y_ 259
$n1 set Z_ 0.0
$ns initial_node_pos $n1 20
set n2 [$ns node]
$n2 set X_ 399
$n2 set Y_ 26
$n2 set Z_ 0.0
$ns initial_node_pos $n2 20
set n3 [$ns node]
$n3 set X_ 719
$n3 set Y_ 257
$n3 set Z_ 0.0
$ns initial_node_pos $n3 20


#================================
#       Generate movement
#================================
$ns at 0.5 " $n0 setdest 200 200 25 "
$ns at 0.5 " $n1 setdest 250 250 30 "
```

```
$ns at 0.5 " $n2 setdest 400 400 50 "

$ns at 0.5 " $n3 setdest 300 300 30 "


#================================
#       Agents Definition
#================================
#Setup a UDP connection
set udp0 [new Agent/UDP]
$ns attach-agent $n0 $udp0
set null4 [new Agent/Null]
$ns attach-agent $n1 $null4
$ns connect $udp0 $null4
$udp0 set packetSize_ 1500

#Setup a UDP connection
set udp1 [new Agent/UDP]
$ns attach-agent $n2 $udp1
set null5 [new Agent/Null]
$ns attach-agent $n1 $null5
$ns connect $udp1 $null5
$udp1 set packetSize_ 1500

#Setup a UDP connection
set udp2 [new Agent/UDP]
$ns attach-agent $n1 $udp2
set null3 [new Agent/Null]
$ns attach-agent $n3 $null3
$ns connect $udp2 $null3
$udp2 set packetSize_ 1500



#================================
#       Applications Definition
#================================
```

```
#Setup a CBR Application over UDP connection
set cbr0 [new Application/Traffic/CBR]
$cbr0 attach-agent $udp0
$cbr0 set packetSize_ 1000
$cbr0 set rate_ 1.0Mb
$cbr0 set random_ null
$ns at 1.0 "$cbr0 start"
$ns at 2.0 "$cbr0 stop"

#Setup a CBR Application over UDP connection
set cbr1 [new Application/Traffic/CBR]
$cbr1 attach-agent $udp1
$cbr1 set packetSize_ 1000
$cbr1 set rate_ 1.0Mb
$cbr1 set random_ null
$ns at 1.0 "$cbr1 start"
$ns at 2.0 "$cbr1 stop"

#Setup a CBR Application over UDP connection
set cbr2 [new Application/Traffic/CBR]
$cbr2 attach-agent $udp2
$cbr2 set packetSize_ 1000
$cbr2 set rate_ 1.0Mb
$cbr2 set random_ null
$ns at 1.0 "$cbr2 start"
$ns at 2.0 "$cbr2 stop"


#=================================
#       Termination
#=================================
#Define a 'finish' procedure
proc finish {} {
    global ns tracefile namfile
```
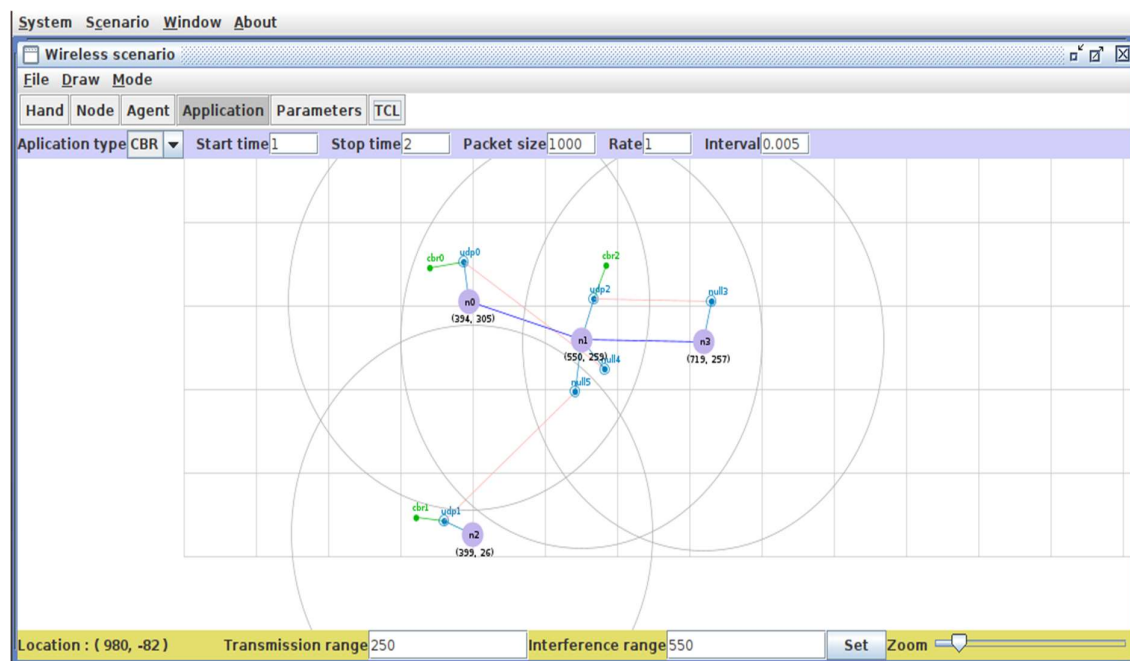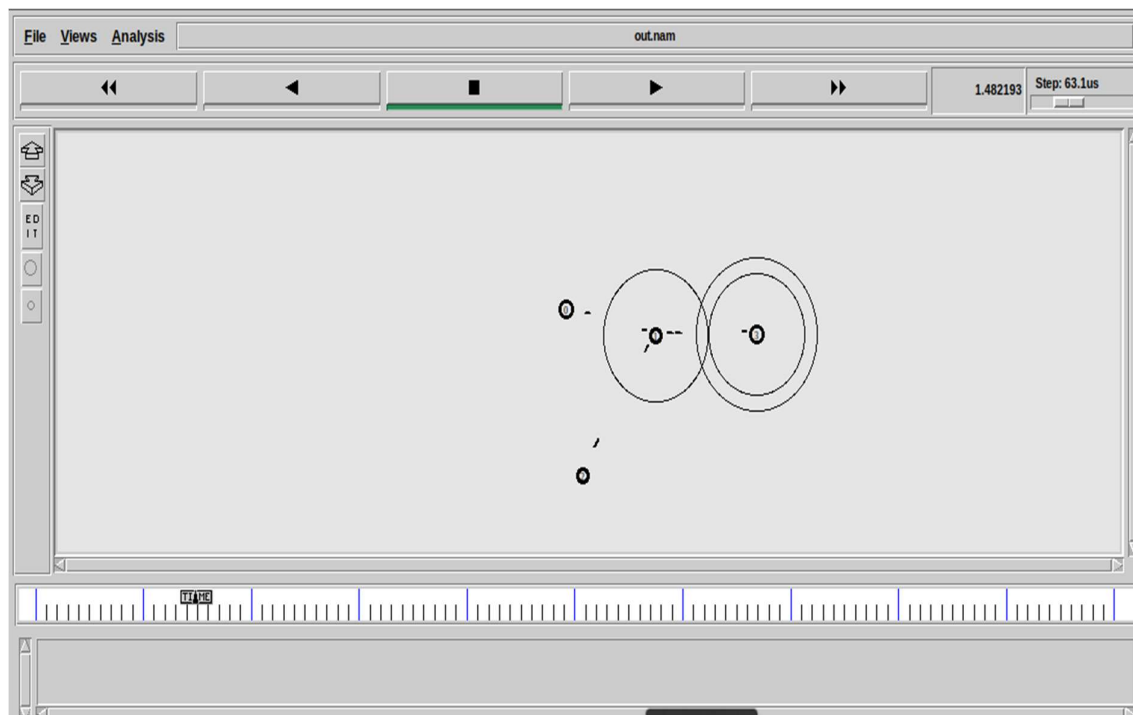
```
    $ns flush-trace

    close $tracefile

    close $namfile

    exec nam out.nam &

    exit 0

}

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

    $ns at $val(stop) "\$n$i reset"

}

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

$ns at $val(stop) "finish"

$ns at $val(stop) "puts \"done\" ; $ns halt"

$ns run
```

OUTPUT-

RESULT- Wireless sensor network using NS2/NSG2 for transmission between mobile nodes using UDP-CBR studied and simulate.