



ISSN No. : 2321-9653

# IJRASET

**International Journal for Research in Applied  
Science & Engineering Technology**

IJRASET is indexed with Crossref for DOI-DOI : 10.22214

Website : www.ijraset.com, E-mail : ijraset@gmail.com

## Certificate

*It is here by certified that the paper ID : IJRASET21428, entitled*

*Ad-Hoc on Demand Distance Vector (AODV) Routing Protocol with Improved  
Optimization Bat (IOBAT) Algorithm for Energy Efficiency and Network Lifetime over MANET*

*by*

*C. Daniel Nesa Kumar*

*after review is found suitable and has been published in  
Volume 7, Issue IV, April 2019  
in*

*International Journal for Research in Applied Science &  
Engineering Technology*

*(International Peer Reviewed and Refereed Journal)*

*Good luck for your future endeavors*

*By [Signature]*

Editor in Chief, IJRASET



ISRA Journal Impact  
Factor: 7.429



45.98  
INDEX COPERNICUS



THOMSON REUTERS  
Researcher ID: N-9681-2016



TOGETHER WE REACH THE GOAL  
SJIF 7.429



ISSN No. : 2321-9653

# IJRASET

**International Journal for Research in Applied  
Science & Engineering Technology**

IJRASET is indexed with Crossref for DOI-DOI : 10.22214

Website : www.ijraset.com, E-mail : ijraset@gmail.com

## Certificate

*It is here by certified that the paper ID : IJRASET21428, entitled*

*Ad-Hoc on Demand Distance Vector (AODV) Routing Protocol with Improved  
Optimization Bat (IOBAT) Algorithm for Energy Efficiency and Network Lifetime over MANET*

*by*

*E. Infant Akkansa*

*after review is found suitable and has been published in  
Volume 7, Issue IV, April 2019  
in*

*International Journal for Research in Applied Science &  
Engineering Technology*

*(International Peer Reviewed and Refereed Journal)*

*Good luck for your future endeavors*

*By [Signature]*

Editor in Chief, IJRASET



ISRA Journal Impact  
Factor: 7.429



45.98  
INDEX COPERNICUS



THOMSON REUTERS  
Researcher ID: N-9681-2016



TOGETHER WE REACH THE GOAL  
SJIF 7.429



ISSN No. : 2321-9653

# IJRASET

**International Journal for Research in Applied  
Science & Engineering Technology**

IJRASET is indexed with Crossref for DOI-DOI : 10.22214

Website : www.ijraset.com, E-mail : ijraset@gmail.com

## Certificate

*It is here by certified that the paper ID : IJRASET21428, entitled*

*Ad-Hoc on Demand Distance Vector (AODV) Routing Protocol with Improved  
Optimization Bat (IOBAT) Algorithm for Energy Efficiency and Network Lifetime over MANET*

*by*

*R. Gandhimathi*

*after review is found suitable and has been published in  
Volume 7, Issue IV, April 2019  
in*

*International Journal for Research in Applied Science &  
Engineering Technology*

*(International Peer Reviewed and Refereed Journal)*

*Good luck for your future endeavors*

*By [Signature]*

Editor in Chief, IJRASET



ISRA Journal Impact  
Factor: 7.429



45.98  
INDEX COPERNICUS



THOMSON REUTERS  
Researcher ID: N-9681-2016



TOGETHER WE REACH THE GOAL  
SJIF 7.429