The implementation is carried out on the MATLAB simulation tool. The snapshots below depicts the different scenarios in which vehicles operates.

Fig 5.1 Snapshot display a road and vehicle movement of vehicles tracked
The above snapshot displays a road (black line) and a vehicle (red spot) moving on it and a green spot refers to RSU which tracks the movement of vehicle shown by blue colored line.

Fig 5.2 Snapshot display a Construction of two intersecting roads

The above snapshot shows the construction of two intersecting roads, one is of yellow color and second of green color. The two red spots indicate the moving vehicle on respective roads.
The vehicle on one road never shifts on second road despite intersection and vice versa. The roads can be of any shape.

Fig 5.3 Snapshot display Construction of two separate roads intersecting

The above snapshot shows the construction of two intersecting roads, one is of yellow color and second of green color. The two red spots indicate the moving vehicle on respective roads. The vehicle on one road never shifts on second road despite intersection and vice versa. The
roads can be of any shape.

Fig 5.4 Snapshot display a road and a 1 RSU placed in centre

The snapshot above shows a road (yellow line) and a RSU placed in the center of the figure (black color). The red color indicates the region in which the vehicle was under the range of static RSU and communicated with it. The blue colored line indicates the communication Channel between RSU and moveable vehicle (red colored star).
Fig 5.5 Snapshot display a road and a RSU placed centre

The snapshot above shows a road (yellow line) and a RSU placed in the center of the figure (black color). The red color indicates the region in which the vehicle was under the range of RSU and
communicated with it. The blue colored line indicates the communication channel between static RSU and moveable vehicle (red colored star).

Fig 5.6 Snapshot display a road and a RSU placed in the center
The snapshot above shows a red line and a RSU placed in the center of the figure (black color) the red color indicates the region in which the vehicle was under the range of RSU and communicated with it. The blue colored line indicates the communication channel between static RSU and moveable vehicle (red colored star).
The snapshot above shows a road (yellow line) and two static RSU’s (black colored stars) placed in figure. The red color indicates the region in which the vehicles was under the range of RSU which is closer to the moveable vehicle and communicate with it. The blue colored line indicates the communication channel between static RSU and moveable vehicle (red colored Star).

Fig 5.8 Snapshot display a road and 2 RSU placed in the center

The snapshot above shows a road (yellow line) and a RSU placed in the center of the figure
(black color). The red color indicates the region in which the vehicle was under the range of RSU and communicated with it. The blue colored line indicates the communication channel between static RSU and moveable vehicle (red colored star).

Fig 5.9 Snapshot display a road and 2 RSU’s placed in center
The snapshot above shows a road (yellow line) and a RSU placed in the center of the figure (black color). The red color indicates the region in which the vehicle was under the range of RSU and communicated with it. The blue colored line indicates the communication channel between static RSU and moveable vehicle (red colored star).

Fig 5.10 Displays a roads on which vehicle is to move & will have 1 RSU placed
This snapshot above shows a roads on which vehicle is to move and will have 1 RSU installed on roadside. Which can be placed anywhere within scenario depending on users choice. Whenever a vehicle comes within the range of RSU, the track changes to red indicating the vehicle in the range of RSU and is communicating with it.

Fig 5.11 Snapshot display a roads on vehicle move 1 RSU installed

This snapshot above shows a roads on which vehicle is to move and will have 2 RSU installed on roadside. Which can be placed anywhere within scenario depending on users choice. Whenever a
vehicle comes within the range of RSU, the track changes to red indicating the Vehicle in the range of RSU and is communicating with it.

Fig 5.12 Snapshot display a road on which vehicle move & 2 RSU’s installed
This snapshot above shows a road on which vehicle is to move and will have 2 RSU installed on roadside. Which can be placed anywhere within scenario depending on users choice. Whenever a vehicle comes within the range of RSU, the track changes to red indicating the vehicle in the range of RSU and is communicating with it.
Fig 5.13 Snapshot display creation of two roads under given scenario

This snapshot shows the creation of two roads under given scenario which can movement of Vehicles can be tracked on these roads. One vehicle is meant to move on one particular road and vice-versa.

Fig 5.14 Snapshot display a road will create a graph in form of roads appears in Urban
This snapshot above shows on road will create a graph in the form of roads appears in urban Scenario. The figure shows that movement of vehicles on a road in using create a graph in Scenario.

Fig 5.15 Snapshot display a roads on vehicle move & 2 RSU installed
This snapshot above shows a road on which vehicle is to move and will have 2 RSU installed on roadside. Which can be placed anywhere within scenario depending on users choice. Whenever a vehicle comes within the range of RSU, the track changes to red indicating the Vehicle in the range of RSU and is communicating with it.

Fig 5.16 Snapshot display a road on vehicle move and will have 1 RSU installed
This snapshot above shows a road on which vehicle is to move and will have 1 RSU installed on roadside. Which can be placed anywhere within scenario depending on users choice. Whenever a vehicle comes within the range of RSU, the track changes to red indicating the vehicle in the range of RSU and is communicating with it.

Fig 5.17 Snapshot display a roads on which vehicle is to move and will have 1 RSU installed

This snapshot above shows a road on which vehicle is to move and will have 1 RSU installed on roadside. Which can be placed anywhere within scenario depending on users choice. Whenever a
vehicle comes within the range of RSU, the track changes to red indicating the Vehicle in the range of RSU and is communicating with it.

Fig 5.18 Snapshot display a road on vehicle move & will have 2 RSU installed

This snapshot above shows a roads on which vehicle is to move and will have 2 RSU installed on roadside. Which can be placed anywhere within scenario depending on user choice. Whenever a
vehicle comes within the range of RSU, the track changes to red indicating the Vehicle in the range of RSU and is communicating with it.

Fig 5.19 Snapshot display construction of two intersecting roads

The above snapshot shows the construction of two intersecting roads, one is of yellow color and second of green color. The two red spots indicate the moving vehicle on respective roads. The
vehicle on one road never shifts on second road despite intersection and vice versa. The roads can be of any shape.

Fig 5.20 Snapshot display creation of two separate roads under given scenario

This snapshot shows the creation of two roads under given scenario which can movement of vehicles can be tracked on these roads. One vehicle is meant to move on one particular road and vice-versa.
Fig 5.21 Snapshot display a road on vehicle move and will have 2 RSU installed

This snapshot above shows a roads on which vehicle is to move and will have 2 RSU installed on roadside. Which can be placed anywhere within scenario depending on users choice Whenever a vehicle comes within the range of RSU, the track changes to red indicating the vehicle in the range of RSU and is communicating with it.
The snapshot above shows a graph as roads appears in urban scenario. The figure depicts the construction area under which roads can be constructed.
Fig 5.23 Snapshot depicts three sub-sections of working scenario in VANETs.

Fig 5.23 depicts three sub-sections.

- First subsection indicates the scale for indicating the transfer of packets between RSU and vehicles using red colored line against VANETs rounds involved.
- Second subsection indicates the number of vehicles involved in vehicle-to-vehicle communication against VANETs rounds involved.
- Third subsection refers to the amount of energy consumed during former V2I and V2V subsections against VANETs rounds involved.
Fig 5.24 Snapshot depicts the recordings for no of vehicles involved in V2V communication against VANETs rounds involved along with its graph (X-axis indicates number of vehicles involved and Y-axis indicates number of rounds.)
Fig 5.25 Snapshot depicts the recordings for no of packets transferred in V2I Communication against VANETs rounds involved along with its graph (Blue bars indicates number of packets transferred in V2I and red bars indicates number of rounds).
Fig 5.26 Snapshot depicts the recordings for no of packets transferred in V2I.

Snapshot depicts the recordings for number of packets transferred in V2I. Communication against VANETs rounds involved along with its graph (Blue bars indicates number of packets transferred in V2I and red bars indicates number of rounds).
Fig 5.27 Snapshot depicts for no of vehicles involved in V2V

Snapshot depicts the recordings for number of vehicles involved in V2V Communication against VANETs rounds involved along with its graph (Blue bars indicates number of vehicle an involved and red bar indicates number of rounds).
Fig 5.28 Snapshot depicts recordings for energy consumed

Snapshot depicts the recordings for energy consumed against VANETs rounds Involved along with its multi-colored pie chart.
Fig 5.29 Snapshot the recordings for energy consumed

Snapshot depicts the recordings for energy consumed against VANETs rounds involve along with its multi-colored pie chart.
Fig 5.30 Snapshot depicts the recordings for energy consumed

Snapshot depicts the recordings for energy consumed against VANETs rounds involved along with its graph (Blue bars indicates energy consumption and red bars indicates number VANET rounds involved).
Fig 5.31 Snapshot the recordings for energy consumed

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<tr>
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<tr>
<td>45</td>
<td>30</td>
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<td>15</td>
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<tr>
<td>13</td>
<td>420</td>
</tr>
</tbody>
</table>

Snapshot depicts the recordings for energy consumed against VANETs rounds involved along with its multi-colored doughnuts.
Fig 5.32 Snapshot depicts recordings for energy consumed

Snapshot depicts the recordings for energy consumed against VANETs rounds involved along with its multi-colored dough nuts.
Fig. 5. The snapshot depicts the recordings for the number of vehicles involved in V2V communication against VANETs rounds involved along with its graph (Blue line indicates the number of vehicles involved and red line indicates numbers).

**Summary**

This chapter discussed different scenarios existing under VANETs. The comparative charts have been constructed to provide deep insight into the working of VANETs under different parameters.