2.3 Route Discovery Process

In FAST, a route discovery (RD) process is initiated when a source node needs to determine a route for destination node, control algorithm diagram of FAST protocol is illustrated in Figure 8. The source node creates a RD packet and the header of RD packet includes the address of source node, address and location of destination node, intersection ID, road segment ID, neighbor’s ID, TTL, and a sequence number.

The source node starts flooding a RD packet until TTL value expired to discover a best route toward the destination. Lee et al. [3] suggested two ways to determine the road density information of the network including road-side wireless sensors and each node broadcast traffic information of itself and neighboring nodes. Although, the deployment of road-side wireless sensors needs major changes in the current city structure. We adopt the second method that was initially proposed to develop LOUVRE in [3]. This method is further described with the help of city scenario in the following paragraph. The flooding method is a useful method to compute the road density information of current and next road segments. The flooding in this way may has a scalability problem and congested the sensitive VANET. Because whenever a node requests a RD packet, it sends a message that passes through potentially every node in the network. It is not a big problem, if the network is small. However, in case of large networks, like VANET, the designed protocol can not scale with the size of the network and it can be extremely wasteful, especially if the destination node is relatively close to the source node.

To solve this broadcasting storm problem, we have used an improved flooding method that initially proposed in [19] and later improved in [5]. When any node receives a RD packet from neighbor node, it first checks the source address and sequence number from routing table, if this node already exists in