Table 1 AODV Comparisons

Comparison Metrics	Base on AODV					Proposed Approach
	AODV [6]	AODV-BR [9]	AODV-CF [10]	AODV-BA [11]	Robust AODV [12]	
Repair method	On-demand route discovery	Backup route pre-establishment		Link break predication and on-demand route discovery	Backup route pre-establishment	Backup node pre-selection
Backup route (node) maintenance	N/A (Not applicable)	No		N/A	No	Yes
Fault-tolerant capability	Dependent on the network topology	Dependent on the pre-established backup route (Worst case: network topology)		Dependent on the network topology	Dependent on the pre-established backup route (Worst case: network topology)	Dependent on the pre-selected backup node (Worst case: network topology)
Failure-free overhead	No	Pre-establishing the backup route		Predicting the link breakage	Duplicated request messages	Maintaining the backup node
Fault-tolerant overhead	Discovering the new route	Activating the pre-established backup route (Worst case: discovering the new route)		Discovering the new route	Activating the pre-established backup route (Worst case: discovering the new route)	Activating the pre-selected backup node (Worst case: discovering the new route)

Table 2 DSR Comparisons

Comparison Metrics	Based on DSR			Proposed Approach
	DSR [5]	LRR [13]	BSR [14]	
Repair method	Flooding the control messages	Reducing the control messages	Get the reliability backup route	Backup node pre-selection
Backup route (node) maintenance	No	No	No	Yes
Fault-tolerant capability	Dependent on the network topology		Dependent on the pre-established backup route (Worst case: network topology)	Dependent on the pre-selected backup node (Worst case: network topology)
Failure-free overhead	No		Broadcast all duplicate control messages	Maintaining the backup node
Fault-tolerant overhead	Discovering the new route	Limit the RREQ request zone to two hops (Worst case: discovering the new route)	Activating the pre-established backup route (Worst case: discovering the new route)	Activating the pre-selected backup node (Worst case: discovering the new route)