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| --- | --- | --- | --- | --- | --- |
| State | State Name | East | North | West | South |
| 0 | East-green | Green | Red | Red | Red |
| 1 | East- yellow | Yellow | Red-Yellow | Red | Red |
| 2 | North - green | Red | Green | Red | Red |
| 3 | North-yellow | Red | Yellow | Red-Yellow | Red |
| 4 | West-green | Red | Red | Green | Red |
| 5 | West-yellow | Red | Red | Yellow | Red-Yellow |
| 6 | South-green | Red | Red | Red | Green |
| 7 | South-yellow | Red-Yellow | Red | Red | Yellow |

There are four roads: East, North, West, and South. The green light will activate in a counter-clockwise sequence, remaining on for 20 seconds, during which all other roads will display a red light. Following this, the yellow light will turn on, and the next road to receive the green light will show a red-yellow light to alert drivers. This cautionary state will last for 4 seconds. Each road is equipped with sensors that can detect traffic jams, emergencies, or if the road is clear. The state diagram consists of eight states, representing the green and yellow states for each road. When a road is in the green state, it will be the only one illuminated in green, while the others will be red for 20 seconds. In the yellow state, the active road will show yellow, the upcoming road will display a red-yellow light, and the remaining roads will be red for 4 seconds. The system will cycle through these states as illustrated in the accompanying figure.