Emergency Traffic Dispersion

Problem Statement:
Given the current infrastructure of cities in countries like India, during any medical emergency, it takes an average of 17.40 minutes for an ambulance team to reach a patient and 45.5 minutes for the patient to reach an emergency department after the call was made. Factors which cause these long time intervals include traffic congestion, inadequate public education, location of patient (whether on ground level or in a high-rise) and distance from hospitals. 45 minutes is too large an amount of time for a patient to be left without medical assistance in a dire situation.

The System:
RF sensors are mounted on top of the E.R.V. and the receivers are placed in every road leading to the signal at a distance that suits the traffic density of the area. The outputs of all the sensors are connected to the digital pins of the microcontroller. Once the Transmitter is read at a distance from one particular lane, the digital output pin to which the reader is connected goes high and thereby normal operation is halted and the lane in which the E.R.V. is approaching turns green and the program to flash the emergency symbol 'E' is run. The microcontroller output pins are continually read to check which output pin goes high. Once a particular output pin goes high, the subroutine to override the normal functioning of the system executes and our system comes into play. This output remains high till the E.R.V has crossed the signal. Priority system is placed on first interrupt request in the scenario of two or more E.R.V at the same time. In order to reset the system, we make use of RFID technology. An RFID tag is mounted on the left exterior of the E.R.V. and a RFID tag reader is placed at the signal junction where the vehicle has to cross in order to go out of the signal. Hence, after the E.R.V crosses the signal, the tag reader sends the signal to the microcontroller to reset the system and restore it to its original state. The whole system is automated and involves no manual involvement whatsoever on the part of the driver.

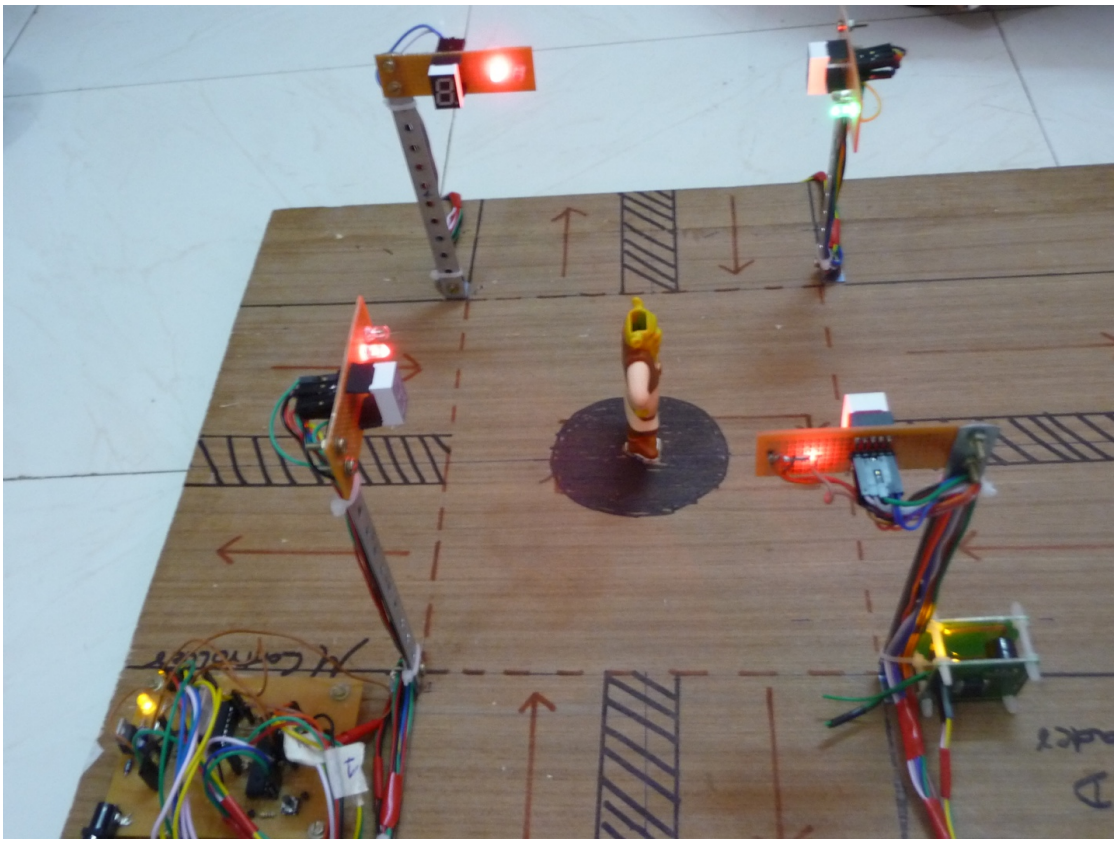

Figure 1: Normal functioning of a traffic signal.

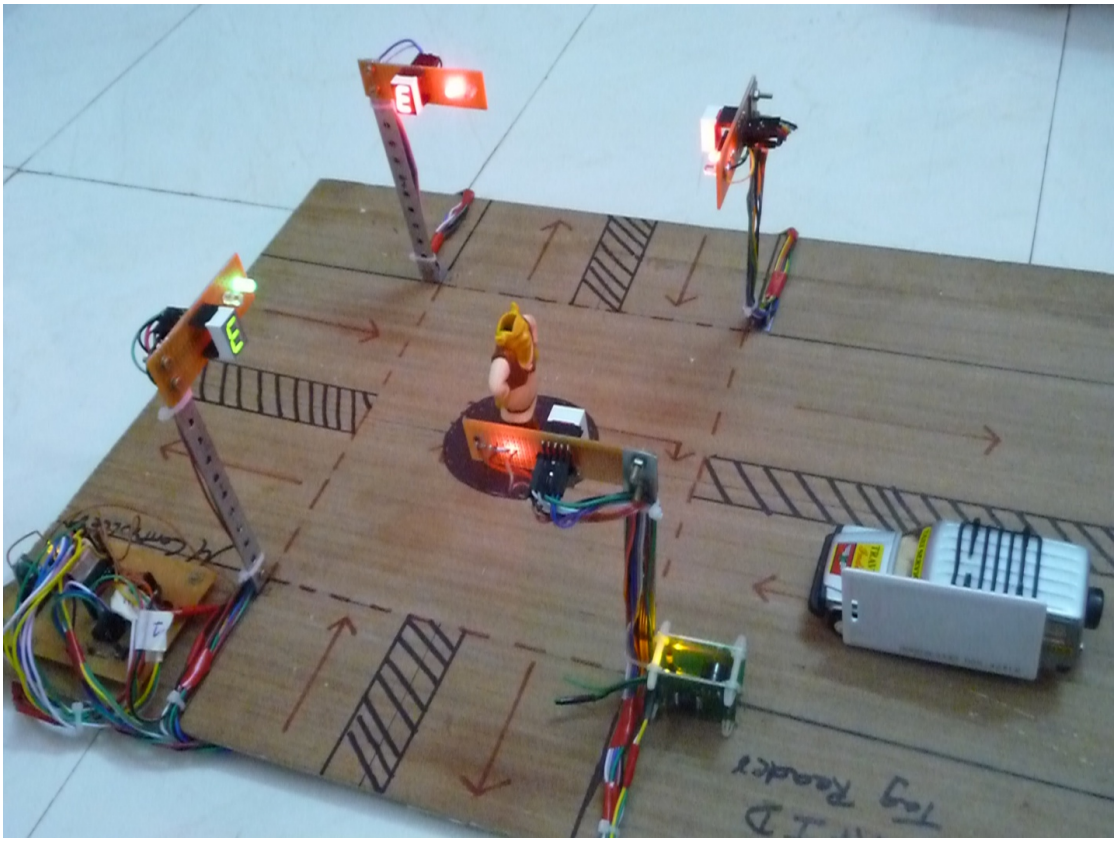

Figure 2: When the ambulance is approaching the signal.