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# SeeGate

# New System Design

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## 1.Purpose & Scope

This document provides a top-level design on the new SeeGate system. SeeGate is a vision-based Container Code Recognition system.

## 2.Referenced Documents

2.1 SeeGate - System Technical Information document (HTS publications)

## 3.Major Requirements

The new SeeGate Design will have the following major changes:

### 3.1.New features

- Single arch structure will hold all units. This will reduce the cost of installation and floor plan.
- Damage inspection option (in B&W) on 4 views:
  - 2 sides (using 4 cameras on both sides)
  - top + back (using 1 camera on top, looking back & down)
- Handle intrusions (second trucker entering during previous session)

### 3.2.Outputs

The new system will have the same outputs of the existing unit:

- DDE,
- event log
- debug/log files as required by SeeMonitor.

In the future - additional output(s) will be added.

### **3.3.Response Times**

The new system will respond within the following cycle times:

- Recognition results within 10 seconds from the time the truck leaves the sensor area
- Damage inspection images within 2 minutes.

### **3.4.Board Design**

The new system will be based on frame grabbers and IO card, but will enable a relatively easy change to Video over IP system.

### **3.5.Configurations**

The new system will allow to easily configure different types of installations:

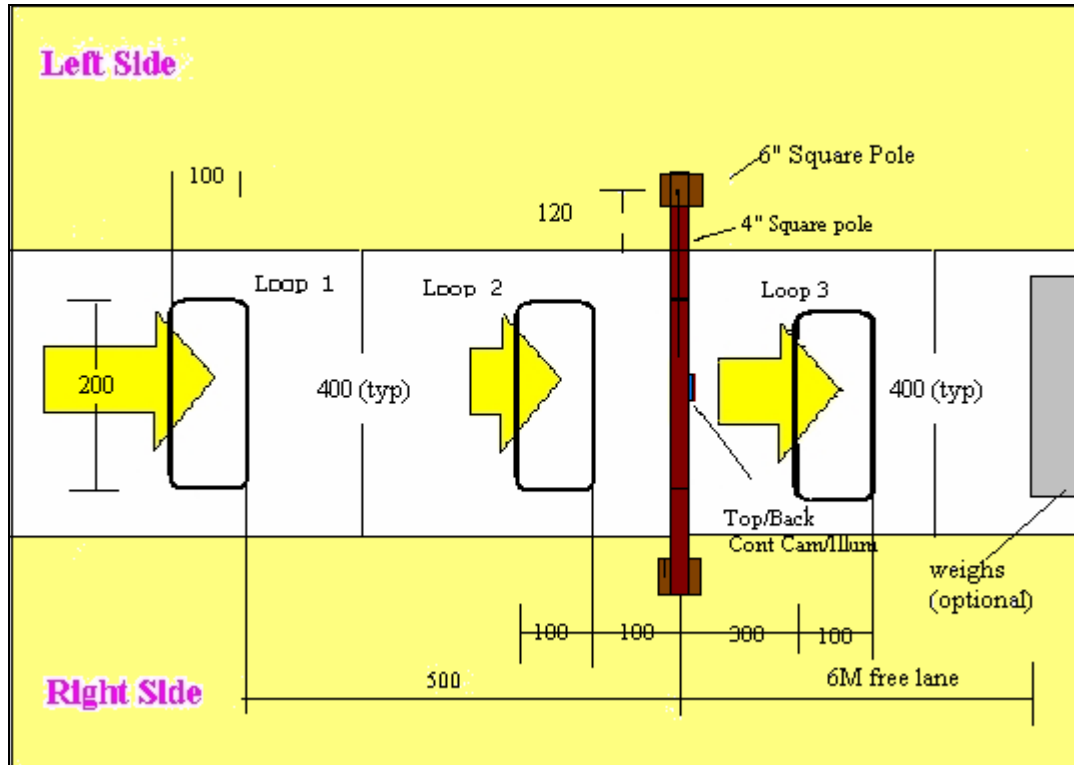
- Container only
- Container + LPR
- Container + LPR + Chassis
- Above options with damage inspection

## 4. Mechanical Design

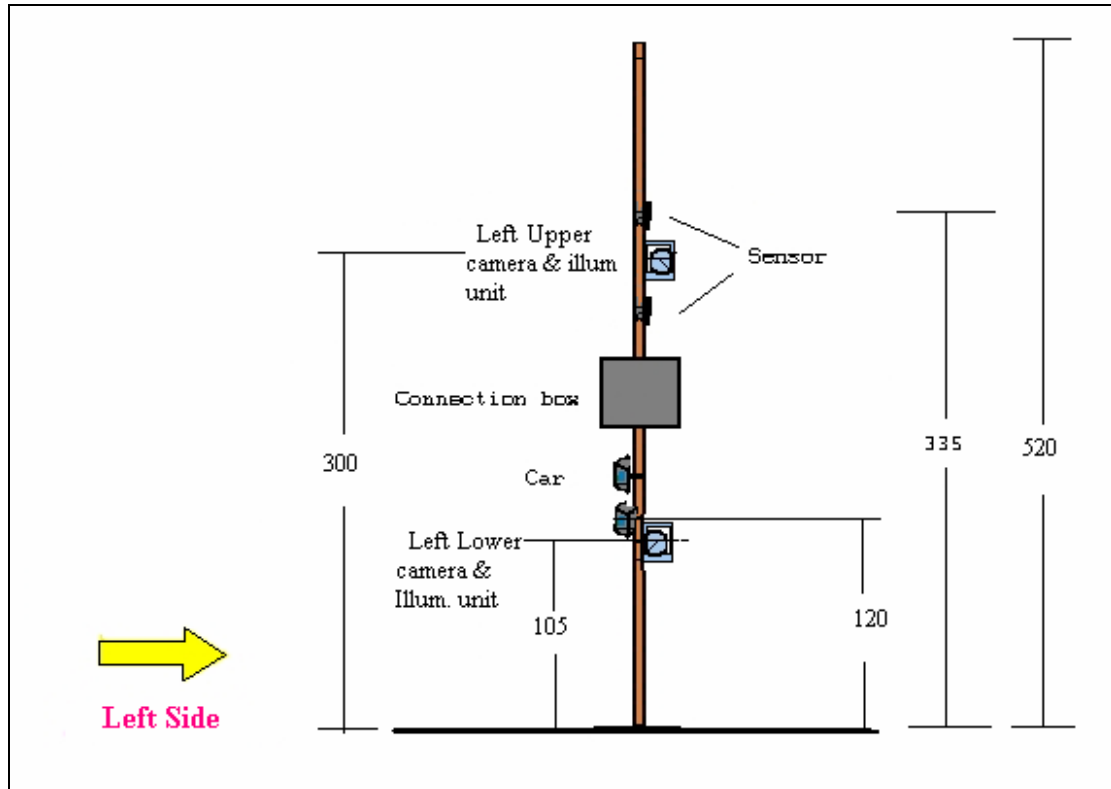
The following illustrations show the installation from various views.

### 4.1. Top View

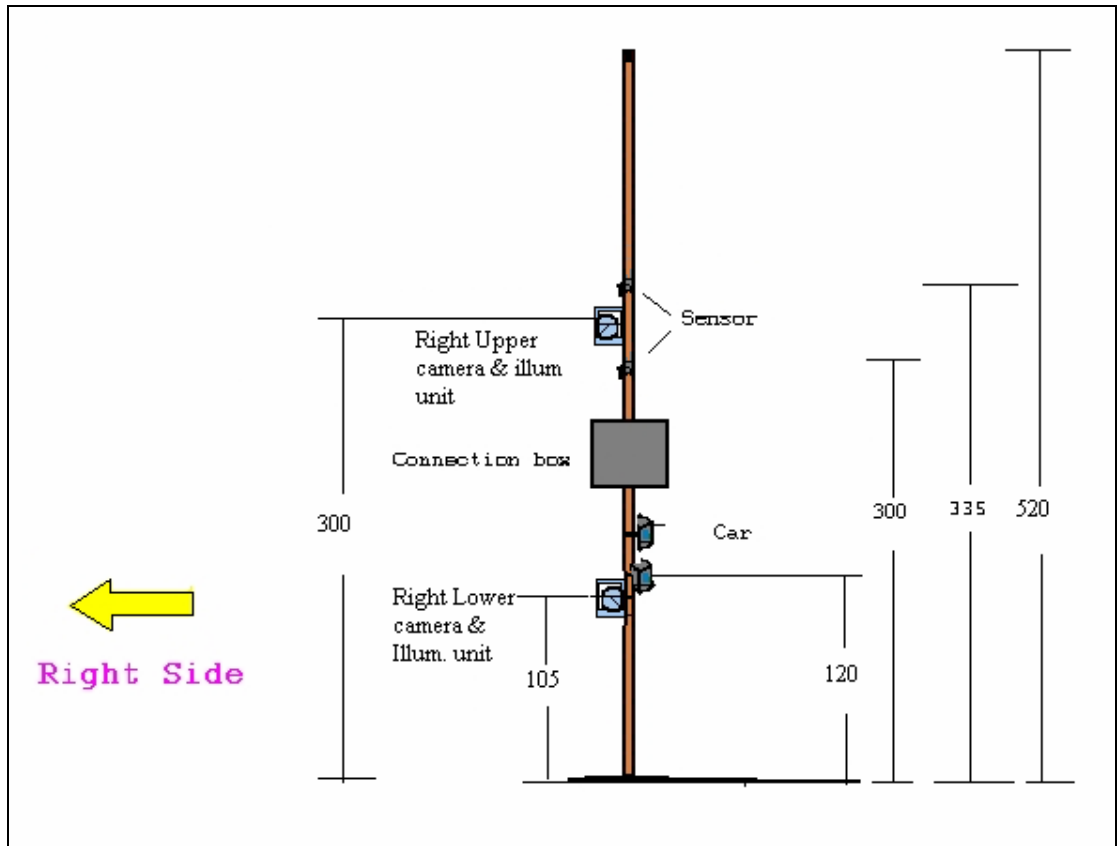
Units are normally in cm (unless specified otherwise).



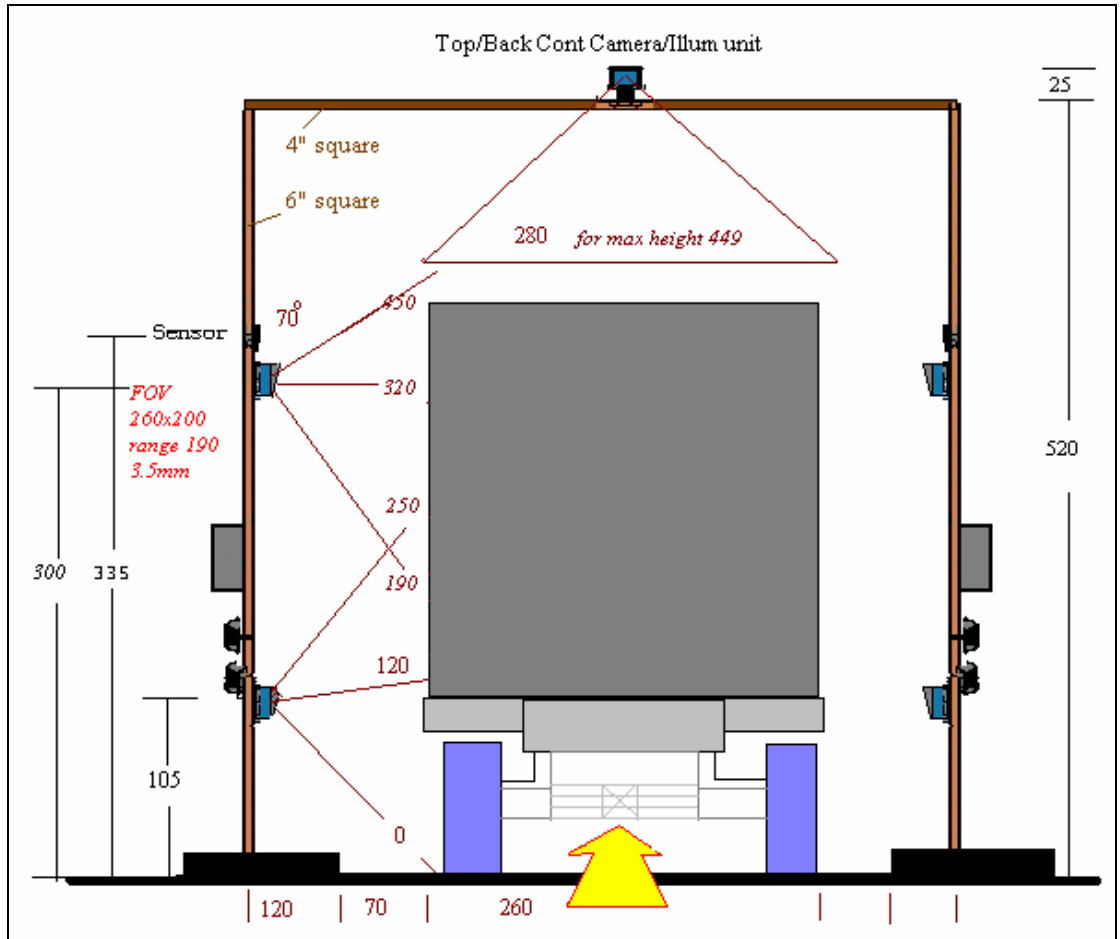
**4.2. Left Side View**



**4.3. Right Side View**



**4.4.Back Side View**





## 5. Optical Design

### 5.1. Camera Types

The following assumes:

- 4M lane
- 1.2M side distance from the pole to the edge of the lane.
- 1/3" CCD

Camera	Type	Range to target [cm]	Lens	Field of View Horizontal [cm]	Field of view Vertical [cm]
LPR (total 4)	HTS IR	670	16mm Manual Iris	200	150
CNT Side (total 4)	HTS Side with red/yellow illumination	190	3.5mm Auto-Iris	200 (90 deg. Rotated)	260
Top/Back (total 1)	HTS with yellow illumination	210 (min)	3.5mm Auto-Iris	300	230