Computer Vision (TERM YEAR) Problem Set #2

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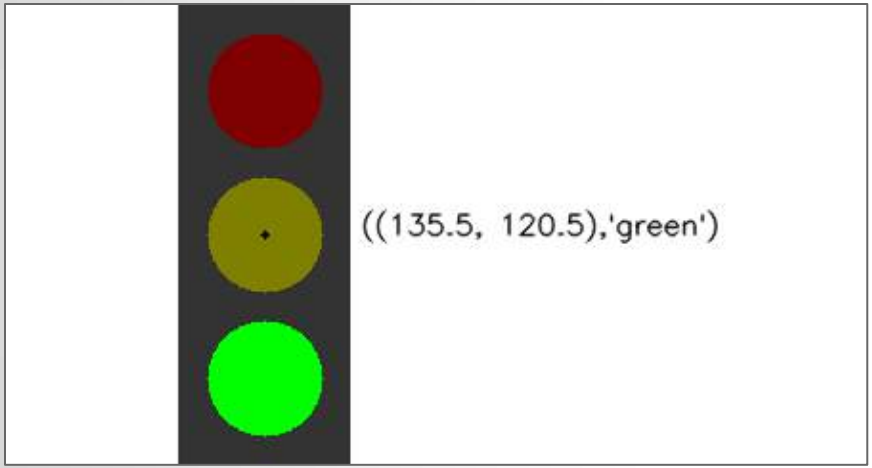
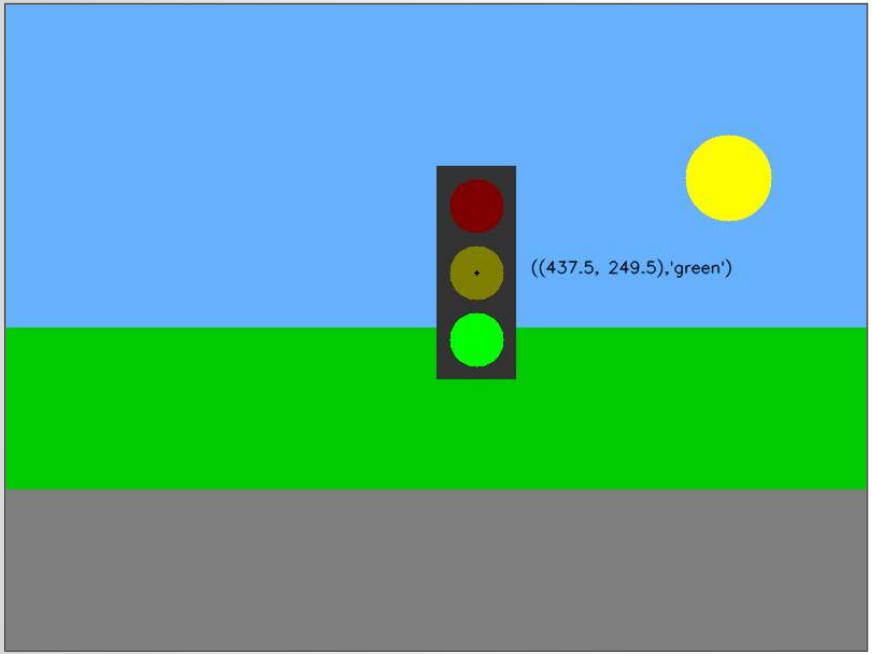
Traffic Light Detection



Coordinates and State:
(135.5,120.5),green

ps2-1-a-1.png

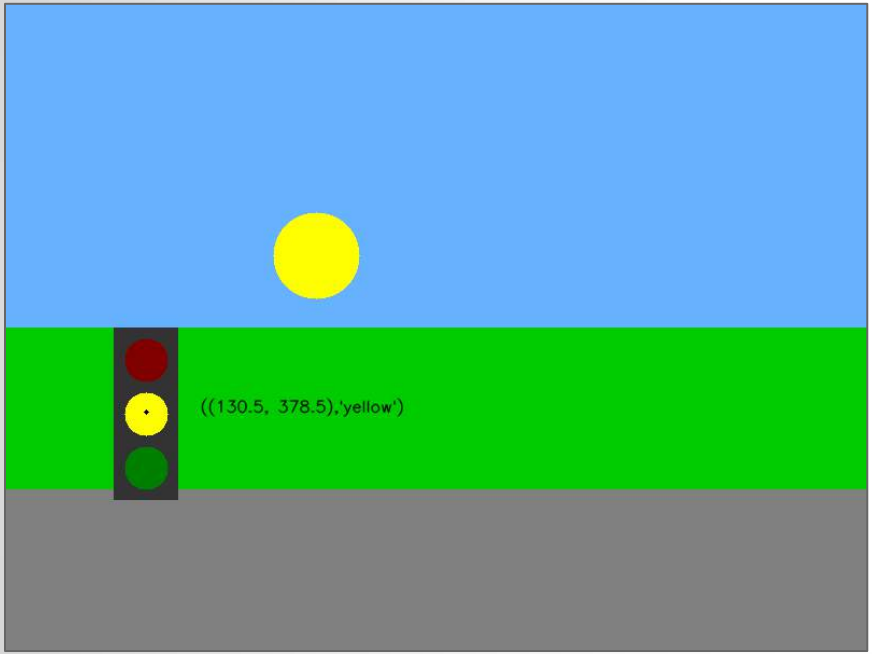
Traffic Light Detection



Coordinates and State:
(437.5,249.5),green

ps2-1-a-2.png

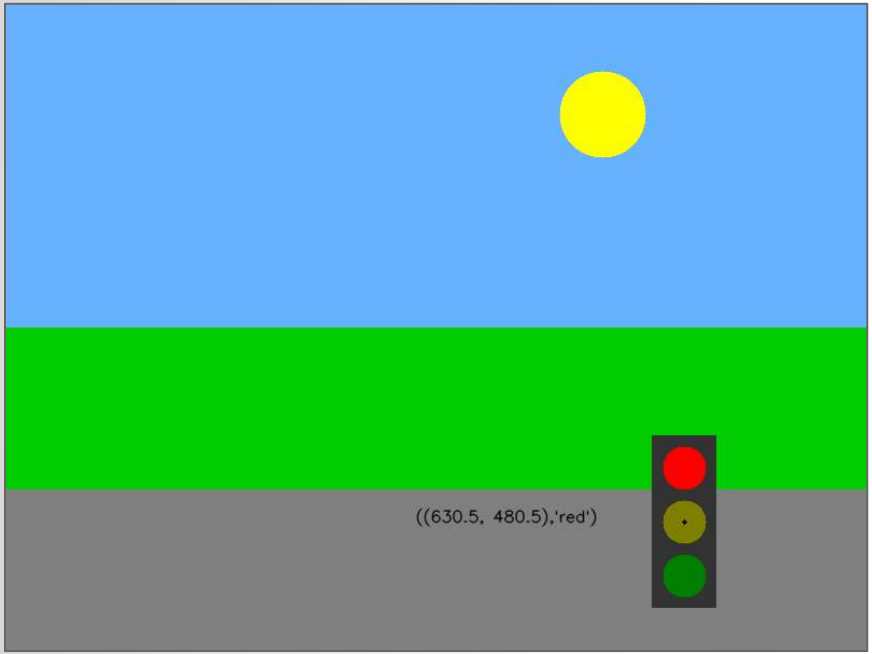
Traffic Light Detection



Coordinates and State:
(130.5,378.5),yellow

ps2-1-a-3.png

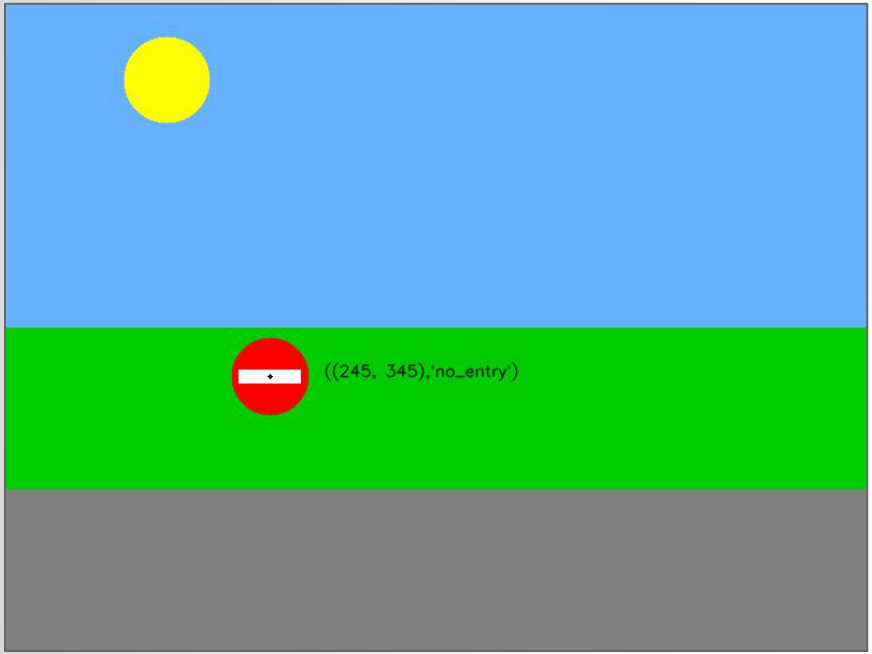
Traffic Light Detection



Coordinates and State:
(630.5,480.5),red

ps2-1-a-4.png

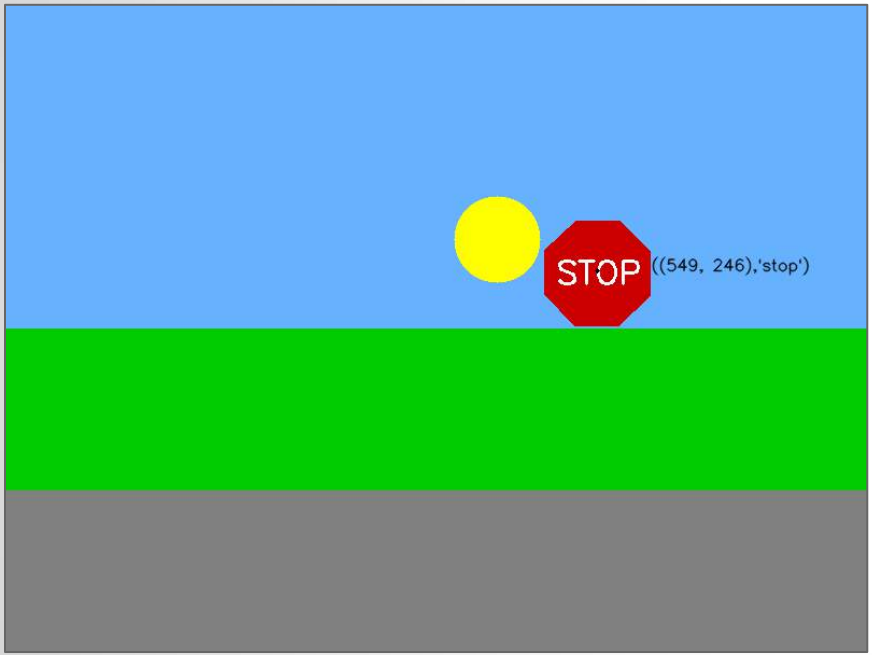
Traffic Sign Detection - Do Not Enter



Coordinates:
(245,345)

ps2-2-a-1.png

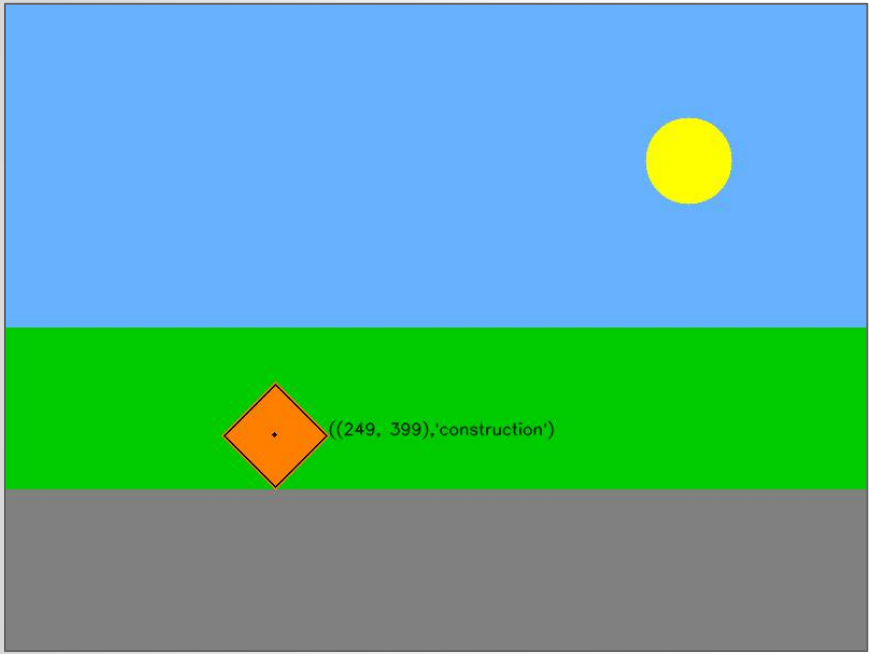
Traffic Sign Detection - Stop



Coordinates:
(549,246)

ps2-2-a-2.png

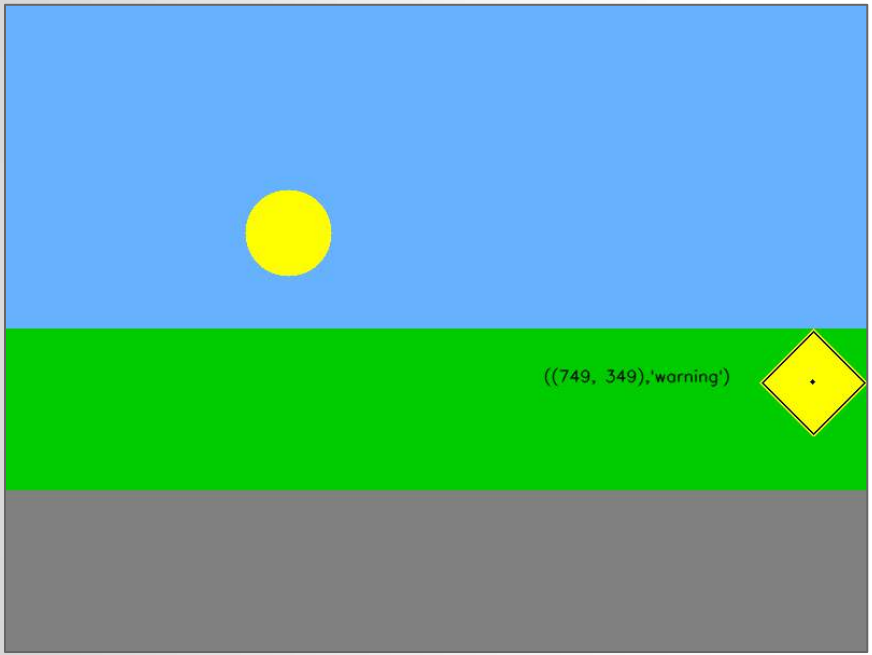
Traffic Sign Detection - Construction



Coordinates:
(249,399)

ps2-2-a-3.png

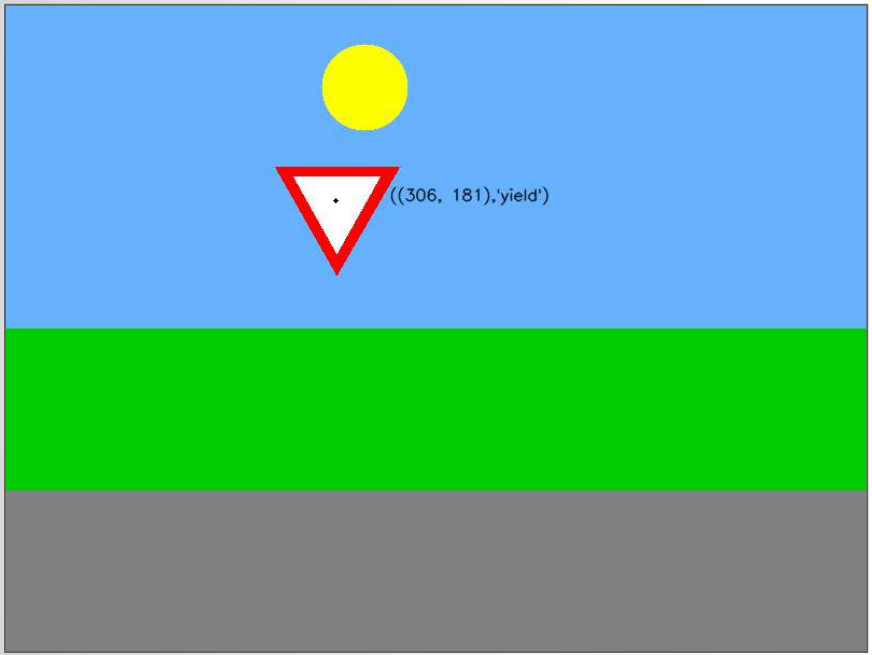
Traffic Sign Detection - Warning



Coordinates:
(749,349)

ps2-2-a-4.png

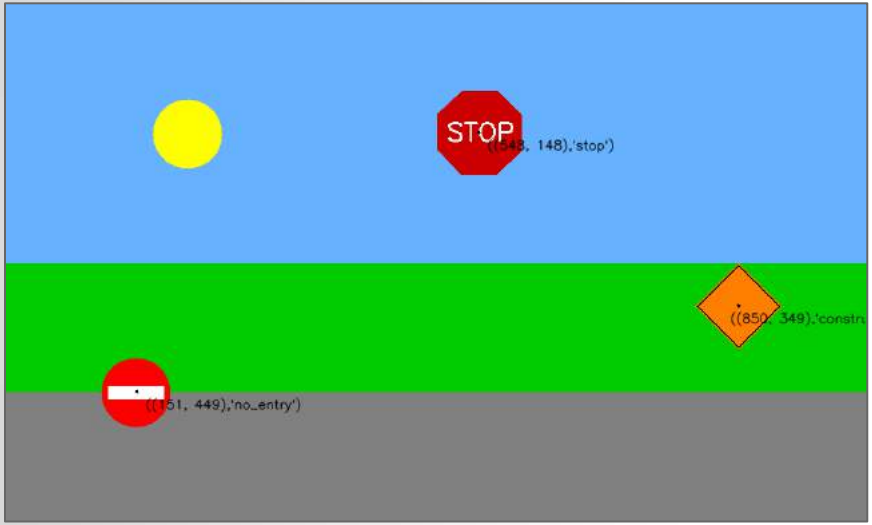
Traffic Sign Detection - Yield



Coordinates:
(306,181)

ps2-2-a-5.png

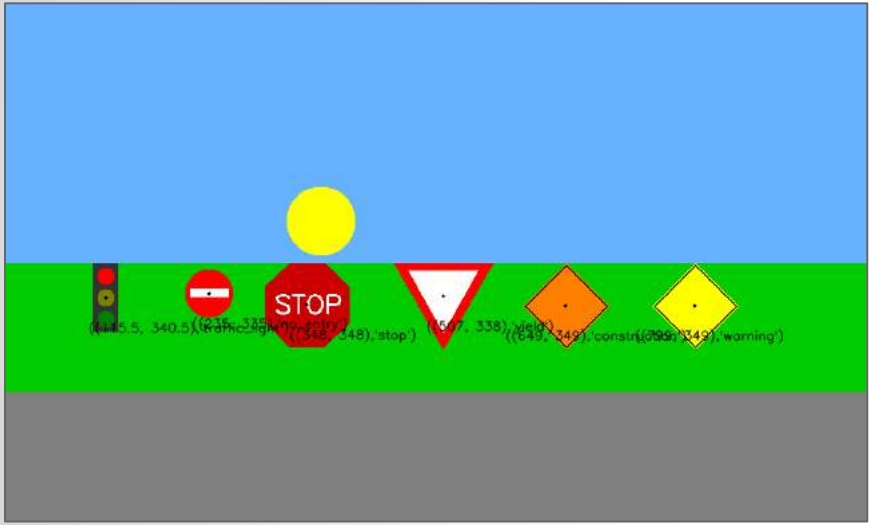
Multiple sign detection



Coordinates and Name:
(151,449),np-entry
(548,148),stop
(850,349), construction

ps2-3-a-1.png

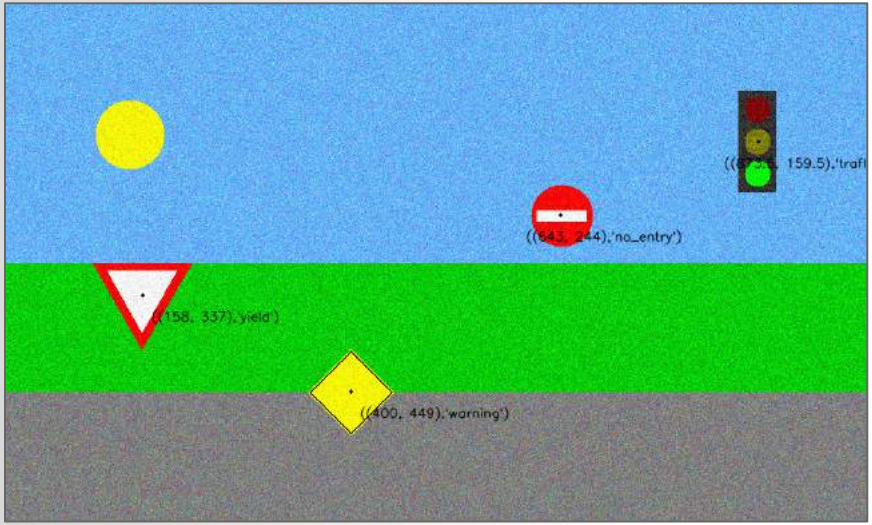
Multiple sign detection



Coordinates and Name:
(115.5,340.5),traffic_light
(235,335),no-entry
(348,348),stop
(507,338),yield
(649,349),construction
(799,349),warning

ps2-3-a-2.png

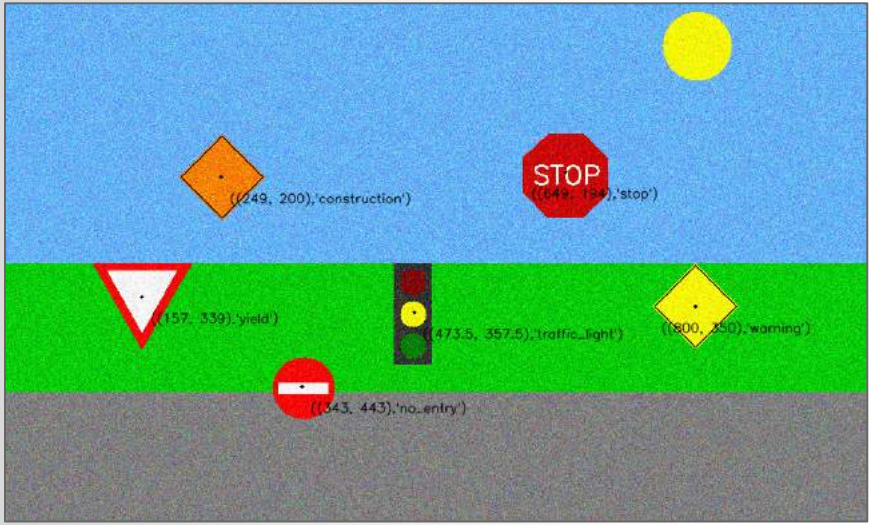
Multiple sign detection with noise



Coordinates and Name:
(158,337),’yield’
(400,449),’warning’
(643,244),’no_entry’
(873.5,159.5),’traffic_light’

ps2-4-a-1.png

Multiple sign detection with noise



Coordinates and Name:
(157,339),’yield’
(249,200),’construction’
(343,443),’no-entry’
(473.5,357.5),’traffic_light’
(649,194),’stop’
(800,350),’warning’

ps2-4-a-2.png

Challenge problem - A

Coordinates and Name:
(120,126),’stop’

ps2-5-a-1

Challenge problem - A

Coordinates and Name:
(464,205),’yield’

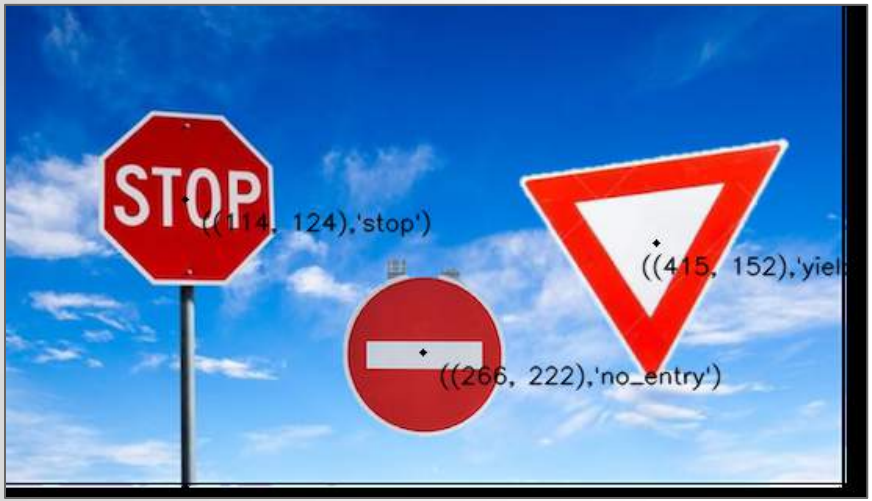
ps2-5-a-2

Challenge problem - A

Coordinates and Name:
(200,148),'no_entry'

ps2-5-a-3

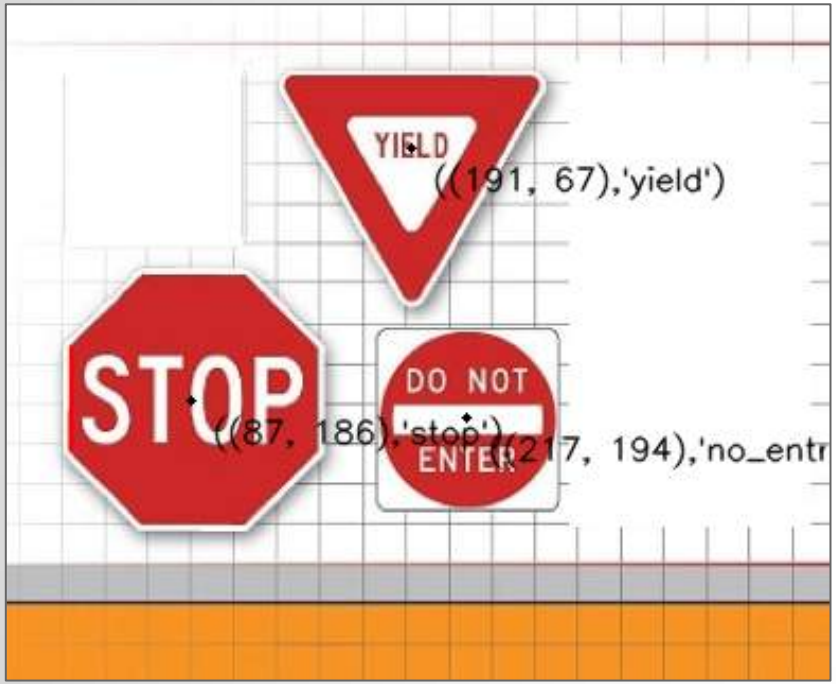
Challenge problem - B



Coordinates and Name:
(114,124),’stop’
(266,222),’no_entry’
(415,152),’yield’

ps2-5-b-1

Challenge problem - B



Coordinates and Name:
(87,186),’stop’
(191,67),’yield’
(217,194),’no_entry’

ps2-5-b-2

Challenge problem - B

Coordinates and Name:
(127,132),’no_entry’
(235,96),’stop’

ps2-5-b-3

Challenge problem - Text

Describe what you had to do to adapt your code for this task. How does the difference between simulated and real-world images affect your method? If you used other functions/methods, explain why that was better (or why your previous implementation did not work)

I hade to change the canny edge parameters as well as select certain color for distinguish. Also, I have to tune my parameter for circle and line detection very carefully. For simulated, it is much easier since the sign is very easy to distinguish from the background. And for real life, the background sometimes affect the detection. Also the sign size matters. I use separate functions for real life and simulated image detection even for same traffic sign. Since real life sign detection, we need to tune the parameters very carefully and also need to add certain criterion to distinguish different traffic signs. But simulated ones do not have this issue.