

Openalpr analysis for Indian number plate recognition

We have analyse alpr for 1750 images of Indian number plates. We run recognition with all available country support. Till now supported country codes are au, br, br2, eu, in, us and vn2. I have added one more country code bh, it has same configuration as eu (slightly different). Each country configuration has some assumption about minimum and maximum character will be used in number plate. To qualify Indian number plate criteria , minimum and maximum character changed to 6 and 10 respectively. Each country has assumption about which character will be used, changed to A-Z and 0-9.

Result Summary:

- Number plate detected by each country:

code	bh	eu	in	br	us	au	vn2	br2	kr2
detect	705	705	729	237	115	102	36	21	0
%	40.3	40.3	41.7	13.5	6.57	5.82	2.05	1.20	0.00

- Highest correct detection of number plate is in “in”, which is only 41.7 %.
- Yellow number plates missing rate is more than white number plate.
- Analysis for character recognition accuracy (If number plate detection is success):

Total	Correct detection	Partial correct	Failed
31	14	6	11

- Maximum correct prediction belong to country code “in” and “eu”.
- Two lines number is recognition accuracy is zero.

Examples: For each image, there are list of countries code for which number plates are detected. Each plate has predicted numbers and its confidence. Correct predictions are highlighted in green and partial correct is in yellow.

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Plate 0: [(u'KLS6N805', 86.638847)]

-----eu-----

Plate 0: [('KL56H8055', 83.406891)]

-----in-----

Plate 0: [('KL56N8055', 90.107986), ('KL5GN8055', 88.883774), ('KL5BN8055', 87.393555), ('KL56H8055', 87.314407), ('KL5SN8055', 86.624252)]

-----bh-----

Plate 0: [('KL56H8055', 83.406891)]



-----eu-----

Plate 0: [('KL13AF4', 83.437119)]

Plate 1: [('I5000', 87.615822)]

-----in-----

Plate 0: [('BAB943', 77.691223)]

Plate 1: [('KL13AF4921', 74.859634), ('KL13A4921', 73.277542), ('XL13AF4921', 71.895866), ('KL13AP4921', 71.568146), ('RL13AF4921', 71.083435)]

-----bh-----

Plate 0: [('KL13AF4', 83.437119)]

Plate 1: [('I5000', 87.615822)]



-----au-----

Plate 0: [('58H413', 81.167336)]

-----br-----

Plate 0: [('KLS8NE', 81.06662)]

-----eu-----

Plate 0: [('KL58H4413', 75.773659), (**'KL58N4413', 74.433548**), ('XL58H4413', 72.228012), ('KL5B4413', 71.912743), ('ML58H4413', 71.888184)]

-----in-----

Plate 0: [('KL58N3', 81.664917)]

-----bh-----

Plate 0: [('KL58H4413', 75.773659), (**'KL58N4413', 74.433548**), ('XL58H4413', 72.228012), ('KL5B4413', 71.912743), ('ML58H4413', 71.888184)]



-----in-----

Plate 0: [('L5D645', 77.132019)]

Plate 1: [('LS8N43', 79.37381)]

Plate 2: [('KLHT33', 77.769989)]



-----eu-----

Plate 0: [('KL58T3645', 83.866913), ('KL5BT3645', 81.522362), ('KL5T3645', 80.497314), ('KC58T3645', 78.929825), ('XL58T3645', 77.693283)]

-----in-----

Plate 0: [('KL58T3645', 79.117691), ('XL58T3645', 74.809334), ('RL58T3645', 73.465134), ('KL5BT3645', 71.779549), ('KL5T3645', 71.590546)]

Plate 1: [('K1T393', 77.011482)]

-----bh-----

Plate 0: [('KL58T3645', 83.866913), ('KL5BT3645', 81.522362), ('KL5T3645', 80.497314), ('KC58T3645', 78.929825), ('XL58T3645', 77.693283)]



-----br-----

Plate 0: [('L8N332', 80.796989)]

-----eu-----

Plate 0: [('KL582', 79.17057)]

-----in-----

Plate 0: [('KL68N3312', 80.760056), ('KL68N3302', 79.765205), ('KL68N8312', 78.685646), ('KL8N3312', 78.116508), ('KL68N8302', 77.690804)]

-----bh-----

Plate 0: [('KL582', 79.17057)]



-----au-----

Plate 0: [('8H2712', 78.582565)]

-----eu-----

Plate 0: [('BH272', 80.322411)]

-----in-----

Plate 0: [('BH2712', 81.737236)]

-----us-----

Plate 0: [('BH2712', 79.568459)]

-----bh-----

Plate 0: [('BH272', 80.322411)]

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-----br-----

Plate 0: [('KL58U8', 81.965096)]

-----eu-----

Plate 0: [('KS8U1681', 79.64106), ('KS8Q1681', 71.623108), ('KS8D1681', 71.268456)]

-----in-----

Plate 0: [('KU58U1681', 79.434303), ('KB58U1681', 78.68737), ('KQ58U1681', 78.685364), ('KS8U1681', 73.687576)]

-----us-----

Plate 0: [('KL58U3', 86.444572)]

-----bh-----

Plate 0: [('KS8U1681', 79.64106), ('KS8Q1681', 71.623108), ('KS8D1681', 71.268456)]

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-----br-----

Plate 0: [('KLOASG7', 79.690491)]

-----eu-----

Plate 0: [('KL10AS9167', 82.605621)]

-----in-----

Plate 0: [('KL10AS9187', 80.273369), ('KL10AS3187', 79.021019)]

-----bh-----

Plate 0: [('KL10AS9167', 82.605621)]



-----in-----
Plate 0: [('L58Q738', 81.538147)]



-----eu-----

Plate 0: [('K8258', 83.955513)]

Plate 1: [('150029', 86.570221)]

-----in-----

Plate 0: [('9K8258', 83.841858)]

Plate 1: [('Q1QD0B', 79.870567)]

-----bh-----

Plate 0: [('K8258', 83.955513)]

Plate 1: [('150029', 86.570221)]



-----eu-----

Plate 0: [('D825150', 83.836441)]

-----in-----

Plate 0: [('L58XS6', 77.14624)]

-----bh-----

Plate 0: [('D825150', 83.836441)]



-----in-----

Plate 0: [('I0QQ0Q', 79.812531)]

Plate 1: [('I18S9621', 81.443283), ('KI18S9621', 80.553413), ('KI8S9621', 78.750313)]



-----au-----

Plate 0: [('2FZ155', 78.516602)]



-----au-----

Plate 0: [('H12FZ155', 84.192276)]

-----br-----

Plate 0: [('HT2FZ1535', 71.878067)]

-----eu-----

Plate 0: [('MH12FZ1535', 88.956619), ('MM12FZ1535', 80.212433), ('MH2FZ1535', 79.997719), ('MH12F2155', 76.322235)]

-----in-----

Plate 0: [('M2FZ1535', 83.911285)]

-----us-----

Plate 0: [('2FZ1535', 84.853134)]

-----bh-----

Plate 0: [('MH12FZ1535', 88.956619), ('MM12FZ1535', 80.212433), ('MH2FZ1535', 79.997719), ('MH12F2155', 76.322235)]



-----br-----

Plate 0: [('3W5O54', 80.646782)]

-----eu-----

Plate 0: [('A3883', 79.587471)]

Plate 1: [('8J723', 80.314163)]

-----in-----

Plate 0: [('LJ7237', 77.632347)]

Plate 1: [('KL3W5654', 76.469658)]

-----bh-----

Plate 0: [('A3883', 79.587471)]

Plate 1: [('8J723', 80.314163)]



-----au-----

Plate 0: [('5H5054', 81.6632)]

-----br-----

Plate 0: [('KLW5OS', 84.006973)]

-----in-----

Plate 0: [('KL13W5054', 83.405548), ('KL13H5054', 78.276772), ('XL13W5054', 77.442131), ('KL13W5654', 77.063118), ('KL1SW5054', 76.078499)]



-----in-----
Plate 0: [('KL5DS5', 74.779091)]



No number plate detected



-----au-----

Plate 0: [('KL73A3', 78.226639)]

-----eu-----

Plate 0: [('9G87I6', 82.235039)]

Plate 1: [('KL73A3235', 75.535049), ('XL73A3235', 72.566368), ('KL7A3235', 69.185196)]

-----in-----

Plate 0: [('KL73A3239', 78.597504), ('KL73A3233', 78.158646), ('XL73A3239', 72.878662), ('XL73A3233', 72.439796)]

-----bh-----

Plate 0: [('9G87I6', 82.235039)]

Plate 1: [('KL73A3235', 75.535049), ('XL73A3235', 72.566368), ('KL7A3235', 69.185196)]



-----br-----

Plate 0: [('187717', 78.618797)]

-----eu-----

Plate 0: [('LI8C7707', 76.496002)]

-----in-----

Plate 0: [('LI8C7717', 81.77639), ('KL18C7717', 79.66024)]

-----bh-----

Plate 0: [('LI8C7707', 76.496002)]



-----eu-----
Plate 0: [('B4BI1', 78.603699)]
-----bh-----
Plate 0: [('B4BI1', 78.603699)]



No number plate detected



-----eu-----

Plate 0: [('A755I', 81.006035)]

-----bh-----

Plate 0: [('A755I', 81.006035)]



-----in-----
Plate 0: [('LSDDS7', 80.03215)]



-----eu-----

Plate 0: [('50I03', 87.10775)]

Plate 1: [('II3N6', 77.970291)]

-----in-----

Plate 0: [('3N8689', 84.468857)]

-----bh-----

Plate 0: [('50I03', 87.10775)]

Plate 1: [('II3N6', 77.970291)]



-----in-----

Plate 0: [('KL58B3352', 86.558311), ('RL58B3352', 81.087585), ('KL8B3352', 77.355965), ('LS8B3352', 76.618172), ('LB8B3352', 73.009781)]



-----in-----

Plate 0: [('KL80F6262', 84.546844), ('KL0F6262', 82.494392), ('KL60F6262', 82.488899),
('LG0F6262', 80.708473), ('KL80P6262', 80.440666)]



-----br-----

Plate 0: [('3AE28O2', 81.863525)]

-----eu-----

Plate 0: [('KL13AE2802', 87.016243), ('KL1AE2802', 80.630211)]

-----in-----

Plate 0: [('KL13AE2802', 86.162636), ('KL3AE2802', 81.985519), ('KL13A2802', 79.316719), ('KL13AG2802', 78.872452), ('KL13A6202', 76.645164)]

-----bh-----

Plate 0: [('KL13AE2802', 87.016243), ('KL1AE2802', 80.630211)]



-----in-----

Plate 0: [('KL5S9971', 74.925583)]



-----au-----

Plate 0: [('AH8788', 83.586418)]

-----eu-----

Plate 0: [('AH6738', 88.582024)]

-----us-----

Plate 0: [('AH6788', 87.415131)]

-----bh-----

Plate 0: [('AH6738', 88.582024)]



-----au-----

Plate 0: [('8D6276', 83.547722)]

-----in-----

Plate 0: [('KI58D6226', 86.820488), ('RI58D6226', 81.082474), ('KI58O6226', 79.648987), ('KI58Q6226', 79.432549), ('KI58B6226', 78.805641)]



-----br-----

Plate 0: [('L58Q82', 83.511284)]

-----eu-----

Plate 0: [('D3492', 84.3675)]

Plate 1: [('KS8Q9862', 82.505302), ('KS8O9862', 73.456444)]

-----in-----

Plate 0: [('KS8Q9862', 82.330917), ('KS8O9862', 76.892204), ('KS8G9862', 74.686035), ('KS8D9862', 74.006859)]

-----us-----

Plate 0: [('58Q984', 87.342041)]

-----vn2-----

Plate 0: [('nQ9862', 83.204895)]

-----bh-----

Plate 0: [('D3492', 84.3675)]

Plate 1: [('KS8Q9862', 82.505302), ('KS8O9862', 73.456444)]



-----au-----

Plate 0: [('4G89I6', 79.379707)]

-----eu-----

Plate 0: [('KL14G8916', 89.009537), ('KL14E8916', 79.528664), ('KL4G8916', 77.548912)]

-----in-----

Plate 0: [('KL5937', 78.366554)]

Plate 1: [('KL1G8916', 84.169487), ('KL14G8916', 83.187042), ('KL4G8916', 74.980835),
('KL1B8916', 73.912476), ('KL14B8916', 72.930031)]

-----bh-----

Plate 0: [('KL14G8916', 89.009537), ('KL14E8916', 79.528664), ('KL4G8916', 77.548912)]

