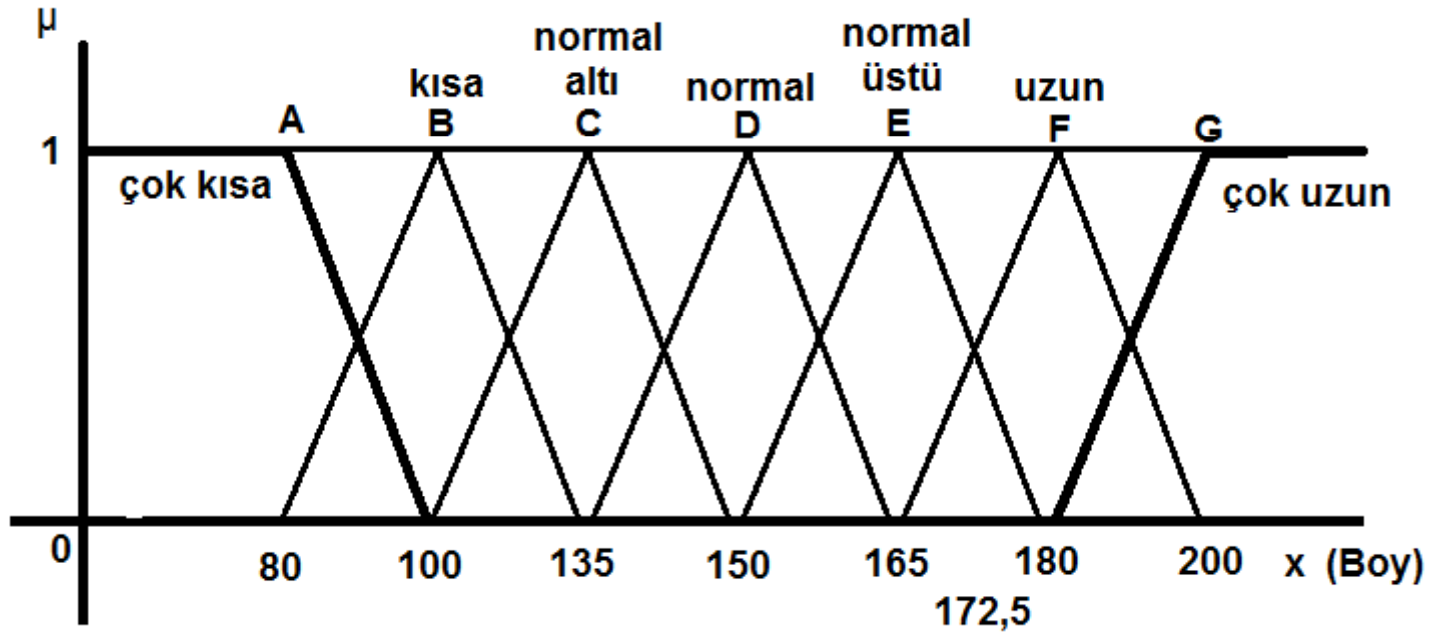


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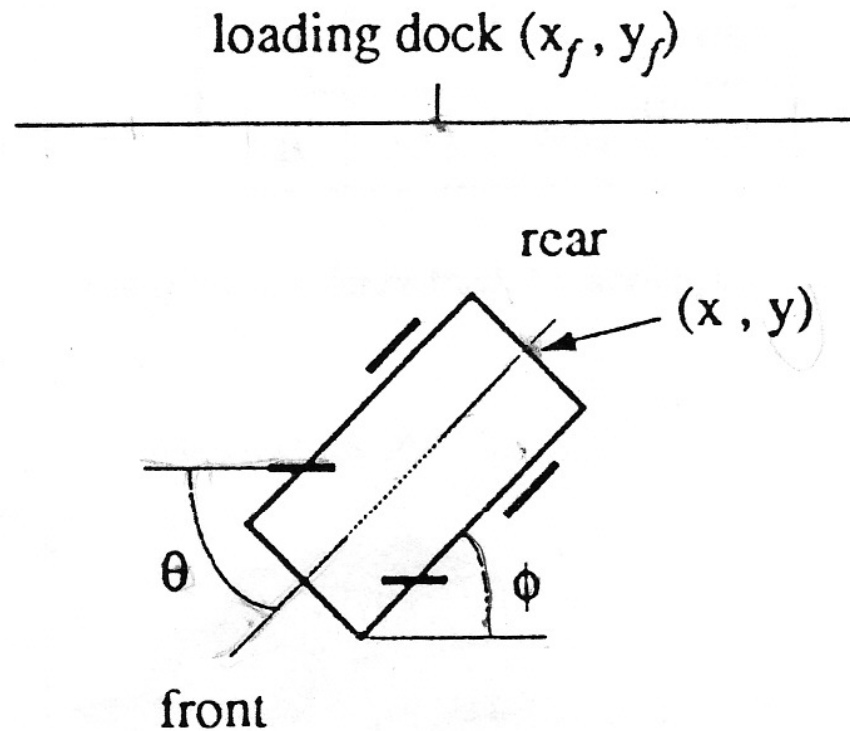


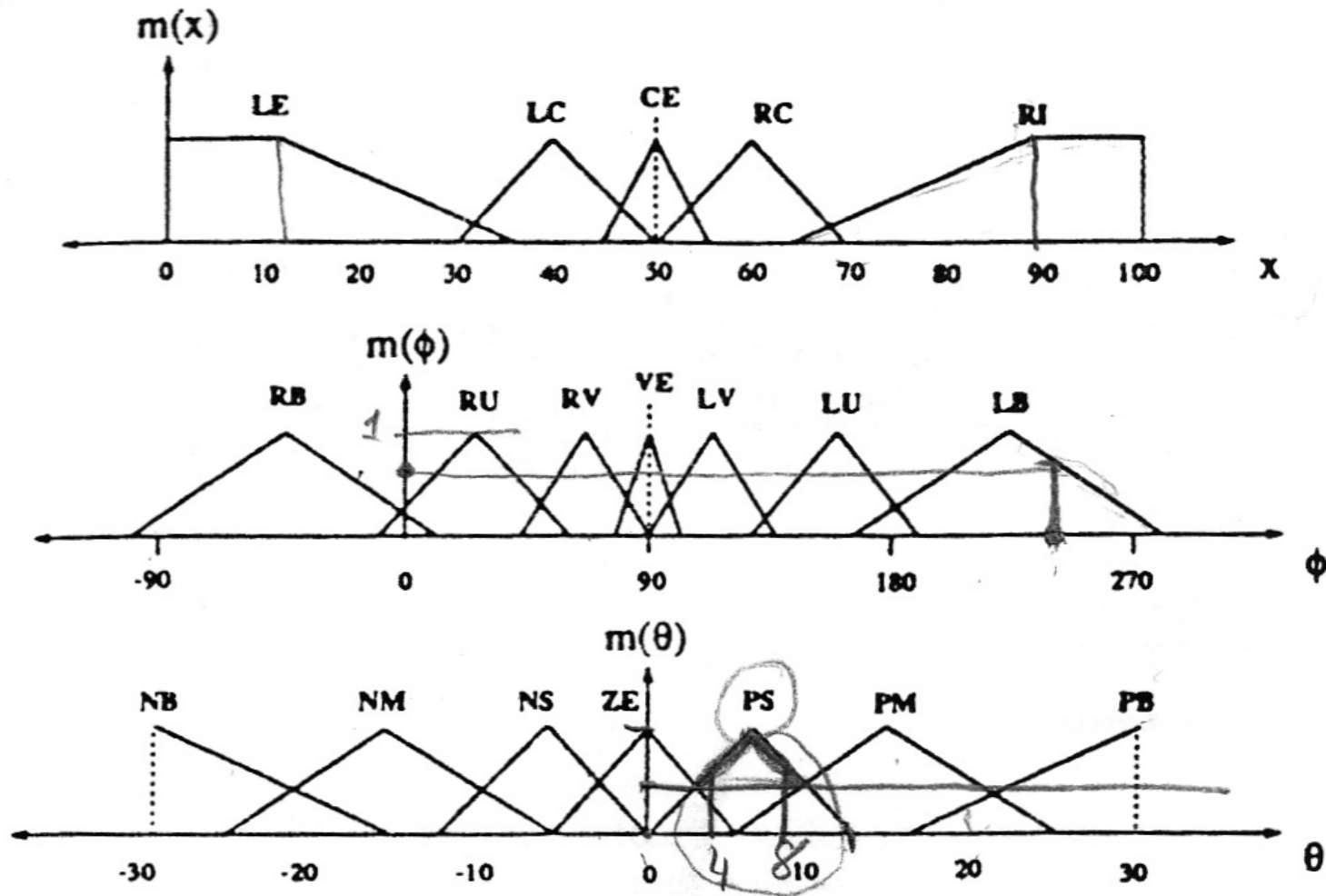
Fig. 2. Diagram of simulated truck and loading dock.

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TABLE I
FUZZY SET VALUES OF THE FUZZY VARIABLES ϕ , x , AND θ

ϕ		x		θ	
<i>RB</i>	Right below	<i>LE</i>	Left	<i>NB</i>	Negative Big
<i>RU</i>	Right Upper	<i>LC</i>	Left Center	<i>NM</i>	Negative Medium
<i>RV</i>	Right Vertical	<i>CE</i>	Center	<i>NS</i>	Negative Small
<i>VE</i>	Vertical	<i>RC</i>	Right Center	<i>ZE</i>	Zero
<i>LV</i>	Left Vertical	<i>RI</i>	Right	<i>PS</i>	Positive Small
<i>LU</i>	Left Upper			<i>PM</i>	Positive Medium
<i>LB</i>	Left Below			<i>PB</i>	Positive Big

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		X				
		LE	LC	CE	RC	RI
ϕ	RB	¹ PS	² PM	³ PM	⁴ PB	⁵ PB
	RU	⁶ NS	⁷ PS	PM	PB	PB
	RV	NM	NS	PS	PM	PB
	VE	NM	NM	¹⁸ ZE	PM	PM
	LV	NB	NM	NS	PS	PM
	LU	NB	NB	NM	NS	PS
	LB	NB	NB	NM	NM	³⁵ NS

Fig. 4. FAM-bank matrix for the fuzzy truck backer-upper controller.

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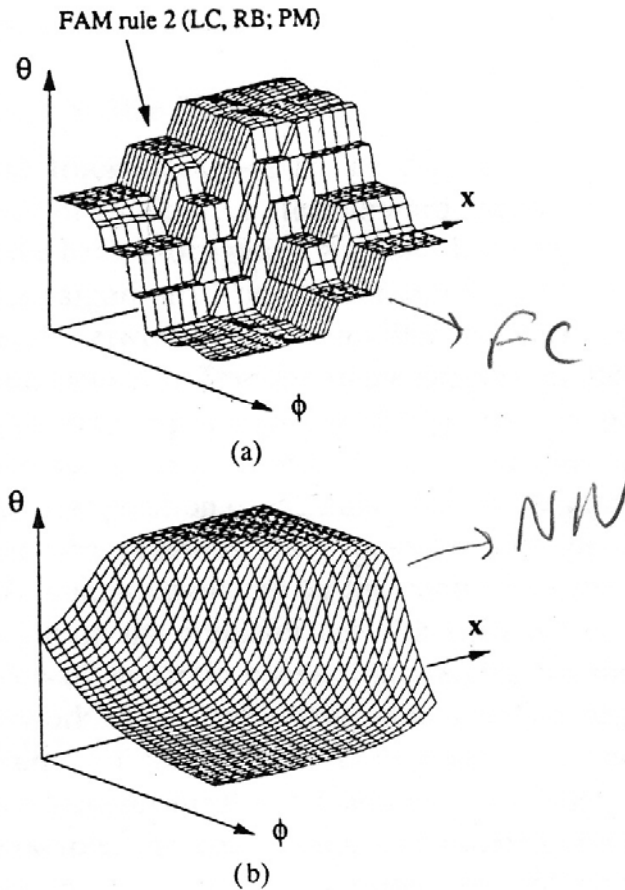


Fig. 5. (a) Control surface of the fuzzy controller. Fuzzy-set values determined the input and output combination corresponding to FAM rule 2 (IF $x = LC$ AND $\phi = RB$, THEN $\theta = PM$). (b) Corresponding control surface of the neural controller for constant value $y = 20$.

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