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Automation of roadway sign painting using a gantry-type robot

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Key Words : Lane (), Roadway sign painting robot (), Gantry robot (), Rail system (), Path generating algorithm ()

Abstract

Automation of roadway sign painting offers more safety for workers, shortening of work period, etc., compared with manual painting. In this study, an automated system using a gantry-type robot was developed for roadway sign painting which has been done manually. Any characters (Korean and English) as well as symbols can be painted by the system. A simulator was also developed, which can show the painted results in advance. The developed system performed well, and the signs painted by the system were found to be as accurate as those made by the simulator.

1.

가

가

2.

2.1

가

†

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*

**

가

가

가

가 가 가
가

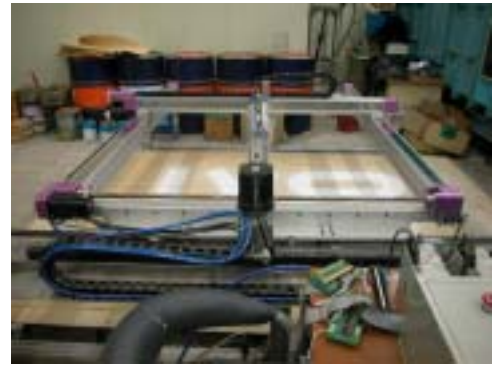


Fig. 2

Fig. 1

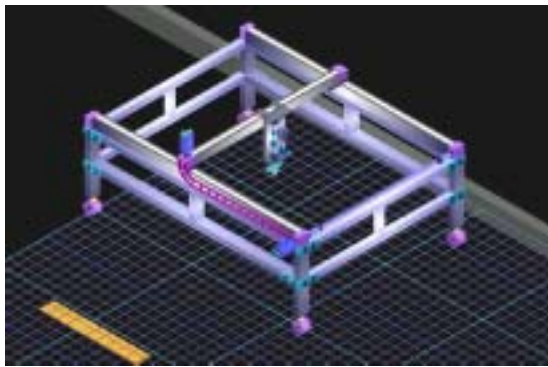


Fig. 1 (Simulator)

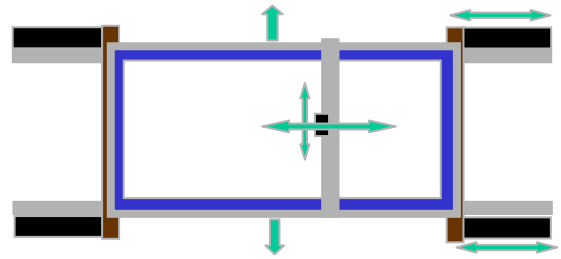


Fig. 3 Top view of the robot system

3.

3.1

Fig. 3

(, Y)
(X)

2.2

X Y ,
4 가

가
(X,Y)

X
가 1000mm
가 1600mm
2600mm 가
3000mm
200mm
가

3

가
가 가

Fig. 2

4. X,Y X,Y

4.1 가 . 3 .

가 ANSI 가 (700*1600)

가 , 10⁶ 7

가 5

X,Y , 3

Y 2

X 1 X,Y

가 Dialogue X

, Automata X . 10³⁻⁵

(degree) . 10²

0 . 10⁰⁻¹

4.2 가 1

가 2

ANSI 5.3

Dialogue ,

5. X,Y

5.1 3 가 가 7 가 9

X , Y X,Y 가 10⁹ X

10⁸

Y

6.

가

X

6.1

X
가

가

X

가

가

4

2

X,Y

X
Y

4

4

6.3

가

가

가

가

()

(3000mm),

()

X

X

X

가 0

1200

1000

Y

1

0

1000

가

Y

1000

1200

가

10

가

가

6.2

가

가

가 2

가

가

1

Homing

가

가

가

가

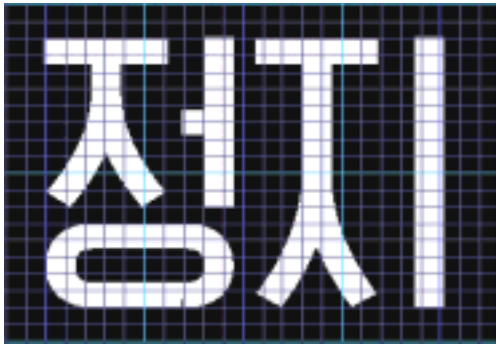


Fig. 4 (Simulator)



Fig. 5



Fig. 6



Fig. 6

8.

가

가

X,Y

가

가

가

가

(Korea Institute of

Construction Technology)

7.

7.1

가

가
가

Fig. 4

Fig. 5

7.2

가

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