Controle de braços robóticos auxiliados por visão computacional.

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Abstract—O objetivo deste artigo é expor os problemas na automação dentro da área da robótica industrial e trabalhar para consertar esse fato. Portanto visando tornar a tecnologia robótica mais autônoma, mais especificamente os braços robóticos, desenvolvemos esse artigo que visa interromper a dependência de uma programação que limita esses robôs a fazer apenas movimentos repetitivos com peças específicas sem nenhuma capacidade de realizar outros movimentos além daqueles pré-programados. Sabemos que esse é um problema que depende de um grande acúmulo de conhecimento antes de poder ser solucionado, devido a esse fato decidimos realizar pesquisas sobre o assunto e desenvolver resultados utilizando a visão computacional. Esses resultados devem impactar diretamente no dia-a-dia da indústria, pois irá reduzir a necessidade de programar novamente um robô para cada mudança em sua função.

Index Terms—robótica, mecatrônica, manipuladores, visão computacional.

I. Introduction

A robótica é uma área em crescimento no mundo, podendo se expandir até 10 vezes mais na última década [1]. Esse aumento se dá principalmente na indústria, onde o uso da robótica gera um maior aumento da produtividade [2]. Desse modo, é uma área que necessita de constantes avanços tecnológicos para suprir essa demanda. Porém, um problema encontrado na robótica industrial é que sua automação não consegue ser independente o suficiente. Quando se programa um braço robótico ele pode fazer o mesmo movimento diversas vezes de forma autônoma, entretanto caso a peça a ser manipulada seja deslocada, o braço não tem capacidade, de forma autônoma, de alterar sua trajetória para poder trabalhar com ela. Assim, como fazer com que um braco robótico possa pegar objetos específicos, independente de suas posições no espaço? Dessa maneira, o objetivo desse artigo é estudar e criar um braço robótico cuja função é coletar objetos, independente de qual posição eles estejam, fazendo o uso de visão computacional. Os objetivos específicos desse artigo, são o estudo e geração do reconhecimento de peças com visão computacional, a cinemática do manipulador, a programação do manipulador e a integração da câmera com o braço robótico. A

importância desse procedimento tem como consequência uma diminuição na necessidade de reprogramação desses braços robóticos, irá facilitar a programação para poder realizar tarefas ainda mais complexas, fornecendo assim economia e efetividade. Dessa forma será realizada uma pesquisa bibliográfica, acerca de braços robóticos, visão computacional e cinemática. Esse trabalho é uma pesquisa aplicada, com objetivo exploratório, por uma abordagem qualitativa.

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$$a + b = \gamma \tag{1}$$

Be sure that the symbols in your equation have been defined before or immediately following the equation. Use "(1)", not "Eq. (1)" or "equation (1)", except at the beginning of a sentence: "Equation (1) is . . ."

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- A graph within a graph is an "inset", not an "insert". The
 word alternatively is preferred to the word "alternately"
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An excellent style manual for science writers is [3].

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a) Positioning Figures and Tables: Place figures and tables at the top and bottom of columns. Avoid placing them in the middle of columns. Large figures and tables may span across both columns. Figure captions should be below the figures; table heads should appear above the tables. Insert figures and tables after they are cited in the text. Use the abbreviation "Fig. 1", even at the beginning of a sentence.

TABLE I TABLE TYPE STYLES

Table	Table Column Head		
Head	Table column subhead	Subhead	Subhead
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^aSample of a Table footnote.

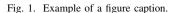


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ACKNOWLEDGMENT

The preferred spelling of the word "acknowledgment" in America is without an "e" after the "g". Avoid the stilted expression "one of us (R. B. G.) thanks ...". Instead, try "R. B. G. thanks...". Put sponsor acknowledgments in the unnumbered footnote on the first page.

REFERENCES

Please number citations consecutively within brackets [4]. The sentence punctuation follows the bracket [5]. Refer simply to the reference number, as in [6]—do not use "Ref. [6]" or "reference [6]" except at the beginning of a sentence: "Reference [6] was the first ..."

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