Review Form 3

Journal Name:	**Journal of Engineering Research and Reports**
Manuscript Number:	**Ms_JERR_121522**
Title of the Manuscript:	**μ-Synthesis of an under-actuated bridge crane**
Type of the Article	**Original Research Article**

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PART 1: Review Comments

Compulsory REVISION comments	**Reviewer's comment**	**Author's Feedback** *(Please correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)*
Please write a few sentences regarding the importance of this manuscript for the scientific community. Why do you like (or dislike) this manuscript? A minimum of 3-4 sentences may be required for this part.	**Yes. It is important to scientific community. Crane operations often involve nonuniform load mass distribution, which introduces model uncertainty into the crane system. Additionally, external disturbances such as wind and friction can cause oscillation of the crane's load. To address these challenges, a robust control strategy is proposed for an uncertain bridge crane system. The goal of this control strategy is to accurately locate the load, quickly transport it, and suppress the swing angle of the load. In this research article, researcher has proposed designed control method.**	
Is the title of the article suitable? (If not please suggest an alternative title)	**Yes.**	
Is the abstract of the article comprehensive? Do you suggest the addition (or deletion) of some points in this section? Please write your suggestions here.	**Yes**	
Are subsections and structure of the manuscript appropriate?	**Yes**	
Please write a few sentences regarding the scientific correctness of this manuscript. Why do you think that this manuscript is scientifically robust and technically sound? A minimum of 3-4 sentences may be required for this part.	**Yes, The bridge crane system is first modelled as a two-degree-of-freedom system in order to study the control problem. The load mass and track friction coefficients are treated as parameter uncertainties in this model. An appropriate set of performance weight and input weight functions are then designed for the closed-loop system using an established procedure. The relationship between the parameters of these weight functions and the resulting control performance is analyzed. Based on the designed weight functions, a μ-synthesis robust controller is developed using the DK-iteration algorithm. An output disturbance is introduced to the system in order to analyze the closed-loop system's ability to suppress pendulum angle oscillations and reject perturbations within a shorter time period. The effectiveness of the proposed robust control method is verified through a simulation example.**	
Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form. -	Yes, the references are sufficient and recent.	

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Minor REVISION comments **Is the language/English quality of the article suitable for scholarly communications?**	Yes, It is in English and the quality of language of the article is suitable for scholarly communications.	
Optional/General comments		

PART 2:

	Reviewer's comment	**Author's comment** *(if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)*
Are there ethical issues in this manuscript?	*(If yes, Kindly please write down the ethical issues here in details)*	

Reviewer Details:

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