



Ain Shams Engineering Journal

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## Reviewer Recommendation and Comments for Manuscript Number ASEJ-D-19-00598

## Development of Quadruped Walking Robots: A Review

Original Submission  
hendriko hendriko, Ph.D (Reviewer 2)

You have already submitted a review for this submission.

Recommendation: Major Revision

Overall Manuscript Rating (1-100): 65

## Reviewer Blind Comments to Author:

It is a scientifically interesting paper which review the development of quadruped walking robots. In this paper, the survey on various design and development approaches for the quadrupedal robot, and environment perception techniques were discussed. In order to accept this paper, major corrections are required. The detailed remarks are as follow,

1. Manuscript has too many Figures (56 Figures) and they are presented in inefficient manner. Most of images should be combined to reduce the number of figures and minimize space. For example, Fig2 - Fig 4 could be combined into one figure, or, Authors may combine more images in one Figure. You may denote each of them using a, b, c, etc.
2. Fig. 56 (a), Fig. 56 (b) and Fig. 56(c) are presented in separated caption. Please learn how to prepare image in scientific article, and then correct these figures.
3. Authors mentioned in Abstract that "Among all the mobile robot, the quadrupedal robot is a legged robot, which is superior to wheeled and tracked robot due to its potential to explore in all the terrain like the human and animal". However, there is no discussion to compare various types of robot in main part of manuscript. How authors came to this conclusion?
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11. Author discuss future work in general view. There is no something new and special. Please discuss future direction deeper and more specific regarding the future trend in research of quadruped walking robot.
12. Authors mentioned in Conclusion that "the robustness of mobile robot is increased due to high precise joint actuators and controller". How authors come to this conclusion? I didn't find any discussion or data regarding the precision of joint actuators.

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For each question, please use the following scale to answer (place an x in the space provided):

"To what extent does the article meet this criterion?"

- 0 Fails by a large amount  
 1 Fails by a small amount  
 2 Succeeds by a small amount  
 3 Succeeds by a large amount  
 4 Not applicable

The subject addressed in this article is worthy of investigation.

0 \_1 \_2 \_x\_3 \_4

The information presented was new.

0 \_1 \_x\_2 \_3 \_4

The conclusions were supported by the data.

0 \_1 \_x\_2 \_3 \_4

Is there a financial or other conflict of interest between your work and that of the authors?

YES \_\_\_ NO \_x\_

Please give a frank account of the strengths and weaknesses of the article:

The strength: This article collected and presented a large number of related researches regarding Quadruped Walking Robot.  
The weakness : Organization the article and discussion.[Reviewer Main Menu](#)

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**ABSTRACT:**

Nowadays, design, development, and motion planning of a mobile robot are exploring research area in the field of robotics. Mobile robots have an extensive area of applications in various fields like space exploration, military application, industrial use, and many more. Hence, the design and development of a mobile robot is a crucial part of the above application. Among all the mobile robot, the quadrupedal robot is a legged robot, which is superior to wheeled and tracked robot due to its potential to explore in all the terrain like the human and animal. In this paper, the survey concentrates on various design and development approaches for the quadrupedal robot, and environment perception techniques also discussed. Besides, SpotMini is one of the most advanced and intelligent quadrupedal robots. The performance of each quadrupedal robot and the future outline provided.

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**Reviewer #2: (Previous Version)**

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Reviewer suggest the authors to classify the historical and discuss them based on specific aspects on the development of quadruped walking robot.

6. (Page 26 line 46), ... However, from a biological point of view, three joint leg structure of territorial animals, which makes the impact on speed and energy...

What is the impact to speed and energy? Please elaborate!

7. In 1st Paragraph of Summary and Future Direction, authors discuss about the different between electrical and hydraulic robot in term of power to weight ratio. How authors came to this conclusion? Please provide the data or references to support this conclusion. Why authors do not use Fig. 56(b) to support the discussion in this aspect?

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Reviewer #3: (Previous Version)

- 1) The data collected is good.
- 2) The organization of the paper is good.
- 3) Spelling mistakes; simple words like "summary", etc. are misspelled.
- 4) References should be more.
- 5) The paper should be re-checked compulsorily for spelling and grammar.

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