



विद्यया ऽथैव ज्ञानं - विद्या
VISVESVARAYA TECHNOLOGICAL UNIVERSITY - Belgaum



"MECHANICAL WALKER USING NEW MECHANISM"

A Dissertation work submitted in partial fulfillment for the award of the degree of

**BACHELOR OF ENGINEERING
IN
MECHANICAL ENGINEERING**

Submitted by

M CHAITANYA
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(JVC17ME003)
(JVC17ME010)
(JVC17ME001)
(JVC17ME022)

*Prof. S G DESAI
Project guide*

*Dr. KORI NAGARAJ, Prof.
Head of Department*



**DEPARTMENT OF MECHANICAL ENGINEERING
RAO BAHADUR Y. MAHABALESWARAPPA ENGINEERING COLLEGE**
Formerly VIJAYANAGAR ENGINEERING COLLEGE
(Approved by AICTE, NEW DELHI & Affiliated to VTU)
BELLARY- 583104
2020-2021



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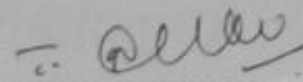
DEPARTMENT OF MECHANICAL ENGINEERING

CERTIFICATE

This is to Certified that the project work entitled "MECHANICAL WALKER USING NEW MECHANISM" carried out by M CHAITANYA(3VC17ME033), EARESH VARMA C(3VC17ME010), KIRAN MATH(3VC17ME031), HANUMESH(3VC17ME022) a bonafide students of Rao Bahadur Y Mahabaleswarappa Engineering College in partial fulfillment for the award of **Bachelor of Engineering in Mechanical Engineering** of the Visvesvaraya Technological University, Belagavi during the year 2020-2021. It is certified that all corrections/suggestions indicated for Internal Assessment have been incorporated in the report deposited in the departmental library. The project report has been approved as it satisfies the academic requirements in respect of Project work prescribed for the said Degree.


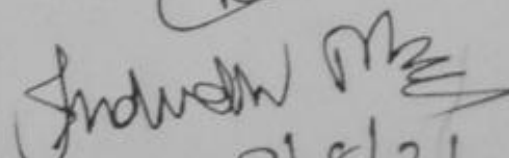

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(Prof. S G DESAI)
Guide


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(Dr. Kori Nagaraj, Prof)
HOD


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(Dr. T HANUMANTH REDDY)
Principal

Name of the Examiners:

1. Dr. Manjunath Kondakal
2. Dr. A. Induraj

Signature


9/8/21

ABSTRACT

Since the invention of the wheel, most of the locomotion is by wheel. The difficulty of wheeled vehicles to traverse certain surfaces, such as muddy, snowy, sandy, slippery, etc. and other difficulties such as uneven, obstructed, stepped, etc. often results in complete immobilization. Another demerit of wheeled vehicles is they have rolling friction and they leave a continuous track or path. It could be desirable for a machine which walks like an animal so as to overcome these shortcomings of wheeled vehicles. The advantages of legged locomotion are low energy consumption, scalable design and clearing obstacles by selecting ground contact points.

Walking and running animals seem to have evolved to be as fast as possible; to have the best possible acceleration, maneuverability, and endurance; and to have energy consumption as low as possible. It has been challenge for scientists and engineers to mimic walking of the animals and design walking machines as the animals travel on various terrains and to walk over obstacles. However, it is not possible to completely mimic a living system because the principle of energy supply, actuation, sensing, control, and intelligence of a biological system is entirely different from the artificial energy supply, actuation, sensing, control, and intelligence. Therefore, from engineering perspective the main focus of biologically inspired walking with legs is not to create a new generation of machines that imitate life but to use principles from nature to improve walking with legs.

Mechanical Walker Using New Mechanism

HERE ARE FEW PHOTOGRAPHS WHICH WE HAVE DONE





Mechanical Walker Using New Mechanism



Mechanical Walker Using New Mechanism

CONCLUSION

This project can step over curbs, climb stairs, or travel into an area that are currently not accessible with wheels but does not require microprocessor control or multitudes of actuator mechanisms.

> By using our new mechanism we can obtain the curves of Theo jenson and Klanns mechanism by changing the pivot joints and adjusting the lengths of the links. It would be difficult to compete with the efficiency of a wheel on smooth hard surfaces but as conditions increase rolling friction, this linkage becomes more viable and wheels of similar size cannot handle obstacles that this linkage is capable of. Pivoting suspension arms could be used to optimize,

- The height of the legs for the waterline.
- Increase the platform height.
- Reduce the vehicle width.

Also it allows the legs to fold up compactly for storage and delivery. Thus, all the principles and mechanisms involved in a walking robot using are studied and the practical difficulties in fabrication of a working model are understood. If implemented properly, automobiles moving on legs using our new Mechanism will have the potential to change mobility as we knows it.

Future Scope of Work

This mechanism can be made more flexible by using different link lengths for front, middle and hind legs. Intelligence can be induced by introducing Sensors and vision to improve the effectiveness of this robot in future. Range of motion and moments available at each joint are the greatest concern as it is important for achieving stance and insect like walking.

Academic Year 2020-21
 DEPARTMENT OF MECHANICAL ENGINEERING

UG PROJECT PHASE - 1
EVALUATION SHEET
 (17MEP78 / 15MEP78)

Date: 23-02-21

1. TITLE OF THE PROJECT:

Design and fabrication of two legged walking Machine.

2. NAME OF THE PROJECT GUIDE: Dr. Shivamappa G. Desai

3. DETAILS OF PROJECT ASSOCIATES:

Batch #	Name of the Student	USN	Phone #	E-Mail ID
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4. EVALUATION:

Sl#	Name of the Student	USN	Project Phase - 1 Marks (Refer rubrics on next page)						Total Marks Obtained (For 100)
			1	2	3	4	5	6	
1	M. Chaitanya	3VC17ME033	09	10	10	10	10	47	96
2	Eareesh Verma.C	3VC17ME010	09	10	10	09	10	47	95
3	Kiran Math	3VC17ME031	10	09	10	10	09	47	95
4	Hanumesh	3VC17ME022	10	10	09	09	10	47	95

5. Viva-Voce (C. I. E.) Committee Members:

Sl#	Name of the Faculty	Signature
1	Pavan Kumar P.K	
2	C.P. Manjunath Somanay	
3	K. Suresh Kumar	K.

6. SIGNATURE OF THE GUIDE: Shivappa

7. SIGNATURE OF H. O. D: _____