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A REVIEW PAPER ON STUDY AND ANALYSIS OF AGRICULTURE CUTTER BY USING FOUR BAR MECHANISM

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Abstract: Agriculture is one of the oldest professions but the ontogenesis and use of machinery has shuffled the chore title of farmer a oddity. About every person employing to provide food for their own idea, a small part of our population today works in agriculture; the small part provides much more food than the other. With the development of more complex machines coming in industrial Gyration, in the last 100 the basic techniques of agricultural machines have undergone some change.. Instruments use crank and slot lever mechanisms, which use pulley and belt drives with electric motors in pairs with a lugger.

Keywords: Structural analysis, Modal analysis, Optimization, ANSYS etc



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INTRODUCTION

Especially chicken feed and an armed bandit lever mechanism. Methamphetamine hydrochloride is rotated through a conical belt assembly by bicycle motor. The curved speed is converted into dynamic motion by the sexual connection using the crank wheel slider. On the other end of the coupling link, the charge speed is converted into dynamic speed using the guide yap. Therefore, the rotating speed of the crank wheel is converted into the mutual speed of the blade through the coupling link.

FOUR BAR MECHANISM

A four-bar linkage, also called a four-bar, is the simplest movable closed chain linkage. They perform a wide variety of function with a few simple office. Then is theme involves the design, synthesis and fabrication of one such mechanism (four bar mechanism). In this paper four Leg Kinematic mechanism works on Chebyshev’s parallel motion which deals the relation between the links.

LINKAGE

A connectedness age is an assembly of bodies connected to manage forces and drive. The cause of a body, or link, is studied using geometry so the link is considered to be rigid. The connections between nexus are modeled as providing apotheosis movement, pure rotation or sliding for example, and are called stick.

MOBILITY

The conformation of a system of rigid links connected by ideal joints is defined by a circle of configuration parameter, such as the angles around a revolute joint and the slides along prismatic reffer measured between adjacent links. The geometric constraints of the linkage allow calculation of all of the configuration argument in 7 senses of term of a minimum readiness, which are the remark parameters. or degree of freedom, of the linkage system. A mechanism with four links is known as simple mechanism, and the mechanism with more than four links is known as compound mechanism. $l = 4$ and $j = 4$. (l =No. of links, J =No. of Joints)
 $n=3(l-1)-2*j$

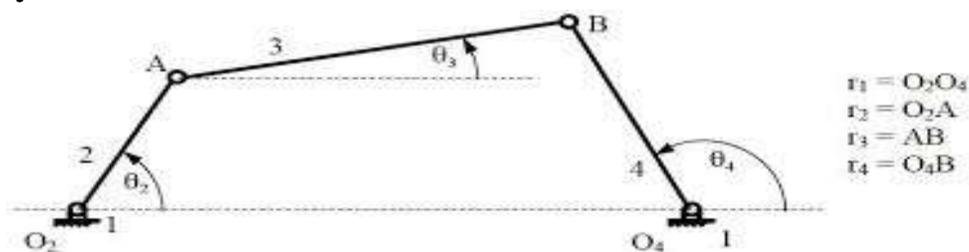


Fig.1

PARALLEL MOTION MECHANISM

Chebyshev Parallel Motion - a linkage, by P.L.Chebyshev in 1868, such that some point on it describes a nearly straight line. A straight-line mechanism, the Chebyshev parallel motion is a four bar linkage ABCD in which the lengths of the links satisfy the relation $3d - a = 2b$. The basic concept of the four leg parallel motion walking machine was derived from Chebyshev parallel motion concept.

r = radius of driving arm (AB) = 30mm

a = length of guiding arm (CD) = $2 * r = 60$ mm

d = length of big arm = $2 * a = 2 * 60 = 120$ mm.

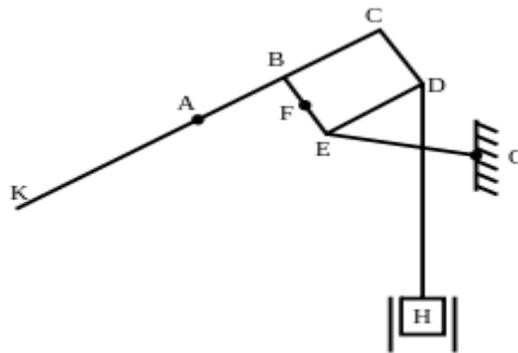


Fig. 2

CRANK MECHANISM DEFINITION

The link 1 has been fixed and the link 2 which is moving about a crank fixed link 1 and this rotary speed changes to the slider's interactive speed (link 4 corresponds to) Connecting the rod corresponding to link 3 Through this. This is the reverse of a single slider crank that is achieved by correcting the link.

LINKAGE MECHANISM

Linkages can be designed to change the direction of a force or make two or more objects move at the same time. Many different fasteners are used to connect linkages together yet allow them to move freely such as pins, end-threaded bolts with nuts, and loosely fitted rivets.

SLIDER MECHANISM

A crank-slider mechanism. Diagrammed in Figure.5, this mechanism is one of several capable of producing the straight-line, backward-and-forward motion known as reciprocating. Fundamentally, the crank-slider converts rotational motion into linear motion, or vice-versa. The position of the piston with respect to the crank center line problem for the control is given by

$$x = (S/2) \cos + L \cos \phi \text{ [ft | m]..... (1)}$$

Where,

$y_A = (S/2) \sin = L \sin \phi$ can be used to eliminate ϕ
 to obtain

$$X/L = (S/2L) \cos + [1-(S/2L) \sin]^{1/2}$$

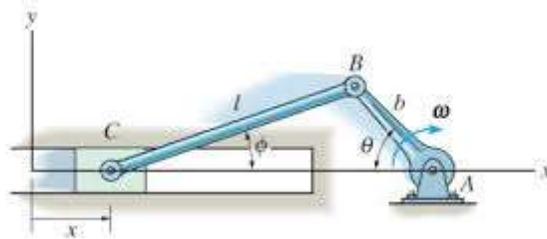


Fig.3

DOUBLE CRANK MECHANISM

The mechanism of coupling rod of a locomotive which consist of four links as shown in figure-5. In this mechanism, the links AD and DC (having equal lengths) act as cranks and are connected to the respective wheel. This mechanism is meant for transmitting rotary motion from one wheel to other wheel.

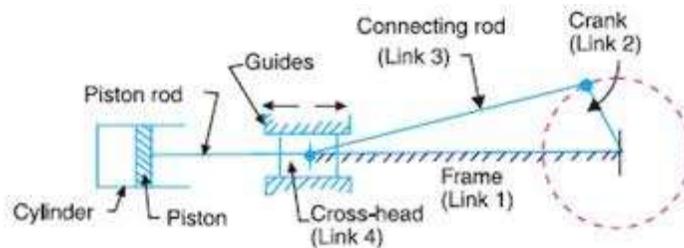


Fig.4

SIMPLE PLANAR LINKAGES

Reverse –Motion Linkage

Objects or forces can move in opposite directions; this can be done using the input link a lever. If the fixed pivot is equivalent to moving pivots, the output link movement will be equal to the input link movement, but it will work in the opposite direction. However, if the fixed pivot is not changed, the output link movement will not be equal to the input link movement.

Push-Pull Linkage

Can make the objects or force move in the same direction; the output link moves in the same direction as the input link.

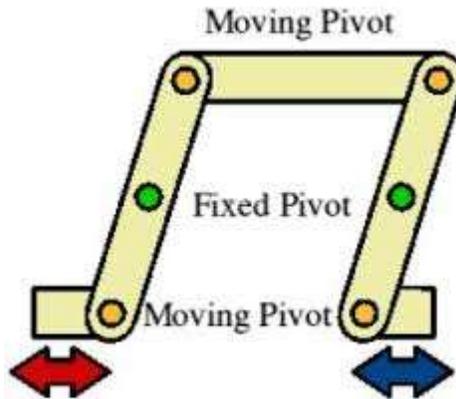


Fig. 5

Parallel Motion Linkage

Moves objects or forces in one direction, but can separate at a different distance. In the parallelogram, the fixed pivot and the fixed pivot running on the opposite link should be similar to the right way for this relationship. Technically classified as a four-time link, this link can also be rotated without changing its work through 360 degrees. Pantographs which obtain electricity for electric trains from overhead cables are based on parallel motion links.

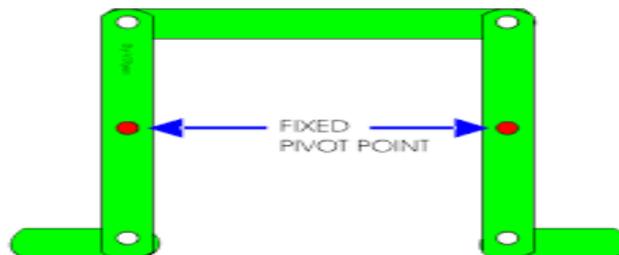


Fig. 6

Bell-Crank Linkage

Can change the direction of goal or force playing from 90 degrees. Prior to the electric clapper, these linkage donut doors were invented. Recently this system has been adapted for bicycle breaks. This personal identification number was made by two bell crank simultaneously to make a 90 degree inclination in contrast commission. Production will be finished by squeezing two handlab liver tumblers attached to the stimulating conclusions of each crank.

CRANK ROCKER MECHANISM

Four times the connection is the most simple and often times, the most useful mechanism. As we mentioned earlier, a mechanism made of hard bodies and lower pairs is called a link (hunting 78). In Planner system, there are only two types of lower pairs and rebellious couples and prismatic pairs. The simplest closed-loop link is a four-way linkage that has four members,

three moving links, a fixed link and four pins. A link that has at least one fixed link is a mechanism. There are four moving links in this system.

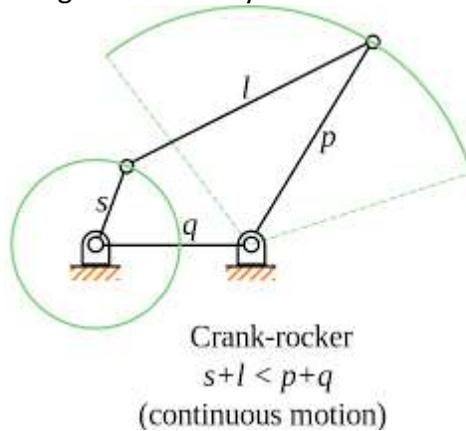


Fig.7

FUNCTION OF LINKAGE

The function of a link mechanism is to produce rotating, oscillating, or reciprocating motion from the rotation of a crank or vice versa.

- 1.) Continuous rotation into continuous rotation, with a constant or variable angular velocity ratio.
- 2.) Continuous rotation into oscillation or reciprocation (or the reverse), with a constant or variable velocity ratio.

FOUR LINK MECHANISM

One of the most simple examples of an obstructed link is the four-link mechanism. Various types of useful mechanisms can be formed from the four-link system through minor variations, such as changing the character of the couple, the proportion of the links, etc. Apart from this, many complex link mechanisms have two or more combinations.

Tantra. Most of the four-linking systems fall into one of the following two sections: In the Planner Mechanism, the simplest group of lower pair system is four times the relation. Four times the linkage includes four times-size links and four shown pairs of pairs.

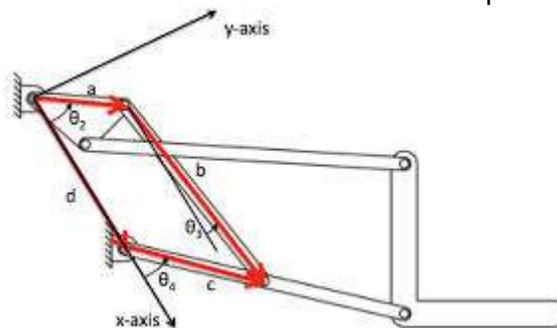


Fig. 8

Some important concepts in link mechanisms are:

- 1.) Crank: A side link which revolves relative to the frame is called a crank.
- 2.) Rocker: Any link which does not revolve is called a rocker.
- 3.) Double-crank mechanism: In a four bar linkage, if both of the side links revolve, it is called a double-crank mechanism.

STEEL FRAME INTRODUCTION

Steel buildings are more flexible than RCC building, but they display lateral deflection compared to RCC building. A braced frame is a structural system designed primarily to resist air and earthquake forces. Bored frame is classified as a concentrated brace frame (CBF) or eccentric brace frame (EBF). Focused brace frames are frames in which the member's center line, which gets jointly, creates a vertical truss system to tamper on one point, which resists the lateral forces.

METHODOLOGY

1. A thorough literature review to understand the basic concept of the topic like seismic evaluation of building structures, Response Spectrum analysis, and linear Time History analysis by referring books, technical papers or research papers.
2. Data collection.
3. Seismic behavior of steel frames with various bracings bracing configuration.
4. Modeling the steel frame with various bracing configuration by computer software ETABS2013.
5. Carry out Equivalent Static analysis, Response Spectrum analysis and linear Time History analysis on the models.
6. Interpretation of results & conclusion.



Fig. 9

NUT AND BOLT INTRODUCTION

The human perception of identifying an object is the natural logical thinking process by which humans recognize an object. But, machines are far behind the human recognition system of an object, so researchers are up -to increasing this efficiency of the machines. The nut and bolt recognition is useful phenomenon in the automotive industry where large number of various shape nut and bolts are used. In this paper we are reviewing the methodologies which are earlier used for the recognition of nut and bolts.

The paper is divided into

1. Introduction,
2. Software framework,
3. Methodology,
4. Performance evaluation and
5. References.

SOFTWARE FRAMEWORK

The three processes which we are going to discuss in this paper are as below:

Radius Variation Detection: For the work of this algorithm, it is necessary to detect the edge of the images captured with the camera of the nut and bolt, the use of the cane algorithm is used to detect the edges of the walnuts and bolts (pre-edges)

Wit algorithms can also be used for purpose). After detecting the center of the edges of the walnut or bolt, the radius is taken at every 20 degrees of the angle from these centers. It gives unique 18 values for different sizes and sizes of walnuts and bolts, which can be used as feature extraction data for artificial neural network input.

Principle Component Analysis: The camera acquired images like walnuts and bolts web cameras, image enhancement is done prior to implementing principle component analysis in the form of feature extraction device for analysis of result enhancements. Targets have been set for identifying walnuts and bolts for individual recognition standards. After completing the network released for demonstration parameter simulation.

Stationery Wavelet Transform: The camera acquired images like walnuts and bolts web cameras, image enhancement is done before applying a static wavelike transform as a feature extraction device for the greater accuracy of the result. Figures drawn from individual walnuts and bolts are given to the input of artificial neural network for training.

PERFORMANCE EVALUATION

In this paper, we have touched the subject of performance evaluation of three feature extraction techniques which are given to the artificial neural network for the identification of walnuts and bolts. We have seen that it becomes more and more important for proper and proper evaluation of computer vision algorithm performance. Therefore a general assessment system should be constructed for bench marking.

WORKING PRINCIPLE

In both induction and synchronous motors, the AC power given to the stator of the motor creates a magnetic field that spins in time with AC oscillation. While the rotor stator of a synchronous motor changes at a rate similar to that of the field, an induction motor rotates slower than the rotor stator field. The magnetic field of induction motor stator is therefore changing or rotating related to the rotor. It induces an opposing current in induction.

ADVANTAGES

1. It is very easy to operate.
2. The design is simple.
3. Less maintenance.
4. Initial cost of the machine is very low.
5. Quick processing.
6. No need of skilled labours.
7. Less floor space required.

APPLICATIONS

1. Used to cut sugarcane and kappa of required size for cultivation.
2. with less modification in this machine,
3. We can use this to cut wooden pieces of required size for boilers.
4. By coupling a conveyor mechanism.
5. It automatically feed the object to be cut for large scale cutting.

CONCLUSION

This work is shuffling with preplanning and it provides flexibility in operation. This innovation is more desirable and economical and using a brand-specific chemical mechanism. This intention and imagination of automated pistol mechanical cutters has been used with the use of four tarpermin linkup mechanisms with this hope and it is very economical and can be used in different areas according to the Torrance given in the crank steering wheel. This work helped us to complete the work of the project, and to know how to work in the group and periodic steps in achieving the goal. In this way we have successfully completed the project.

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