

A PROJECT REPORT ON SPIDER ROBOT

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ABSTRACT:

Our robot is with a new concept of climbing the wall. A continuous locomotive motion with a high climbing speed of 15m/min is realized by adopting a series chain on two tracked wheels on which 12-16 suction pads are installed. While each tracked wheel rotates, the suction pads which attach to the vertical plane are activated in sequence by specially designed mechanical valves.

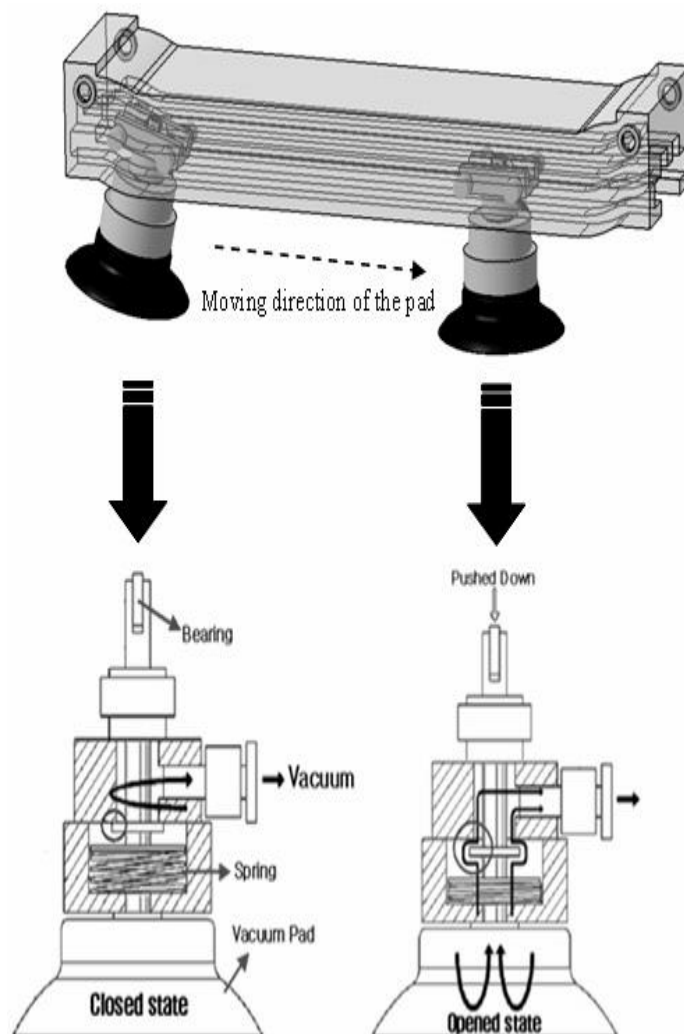
wheel robot reaches 15mts/sec suction pads and mechanical valves are installed on the outer surface of each timing belt and they are bolted with each follower. A guiding rail helps the follower move according to the wheel rotation without rocking from side to

INTRODUCTION:

It employs a chain-track on which 12-16 suction pads are installed. 6-8 pads on each side respectively. This can be mainly used in special operations, spying, surveillance. The robot is composed of a main frame and a tracked wheel system. On the main frame, a vacuum pump, power supply, control module and actuation set for driving are installed. The tracked wheel system is basically made up of a timing belt and pulley. suction pads and mechanical valves are installed on the outer surface of each timing belt and a guiding rail and profile cam, which guide the movement of suction pads according to our remote control.

Working principle of tracked wheel mechanism

As mentioned above, the robot employs tracked wheels as the locomotive mechanism. It can move continuously as compared to climbing robots using a legged mechanism or sliding mechanism. The maximum climbing speed of our tracked



side. A curved profile cam located between the guiding rails controls the operation of mechanical valves. At the beginning, the mechanical valve is choked because the spring inside of the valve closes up an opening. If a roller bearing located on the end of the valve is pushed down by the curved profile cam, free flow occurs between the vacuum pump and suction pad, and the suction pad attaches itself to the wall. The shape of the profile cam is designed to push the roller bearing when the suction pad approaches the wall and then the pad surface becomes parallel with the surface of the wall. Conversely, it releases the roller when the suction pad withdraws from the wall. This repetition of on/off operation of the valve enables the robot to climb the wall with fast and continuous motion.

Uses:

- * This can be mainly used in surveillance ,
- * This can be used in wars,
- * This can be used in country borders,
- * This can be used to know the national security secrets,
- * This can be used in spying the target,
- * In case of any high jacks of an aeroplanes, hotels, trains, etc..... this kind of small and tiny robots can be used to get information.
- * This can be used in forests. etc.....

Disadvantage:

- * The main disadvantage is of its battery life. If once the battery is dead, the new batteries should be supplied.

SPIDER ROBOT:

