

Limber Robotic Arm System for Effective Cleaning

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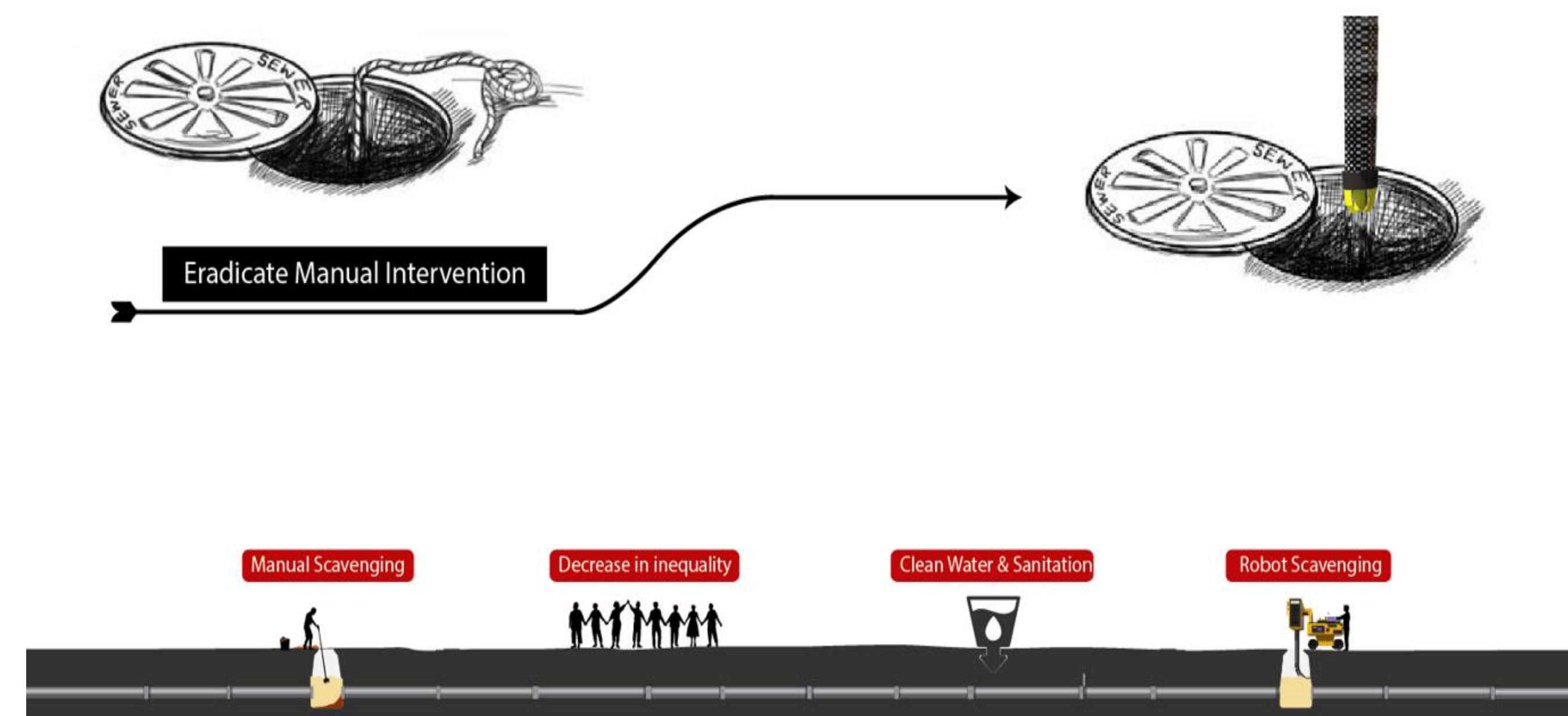
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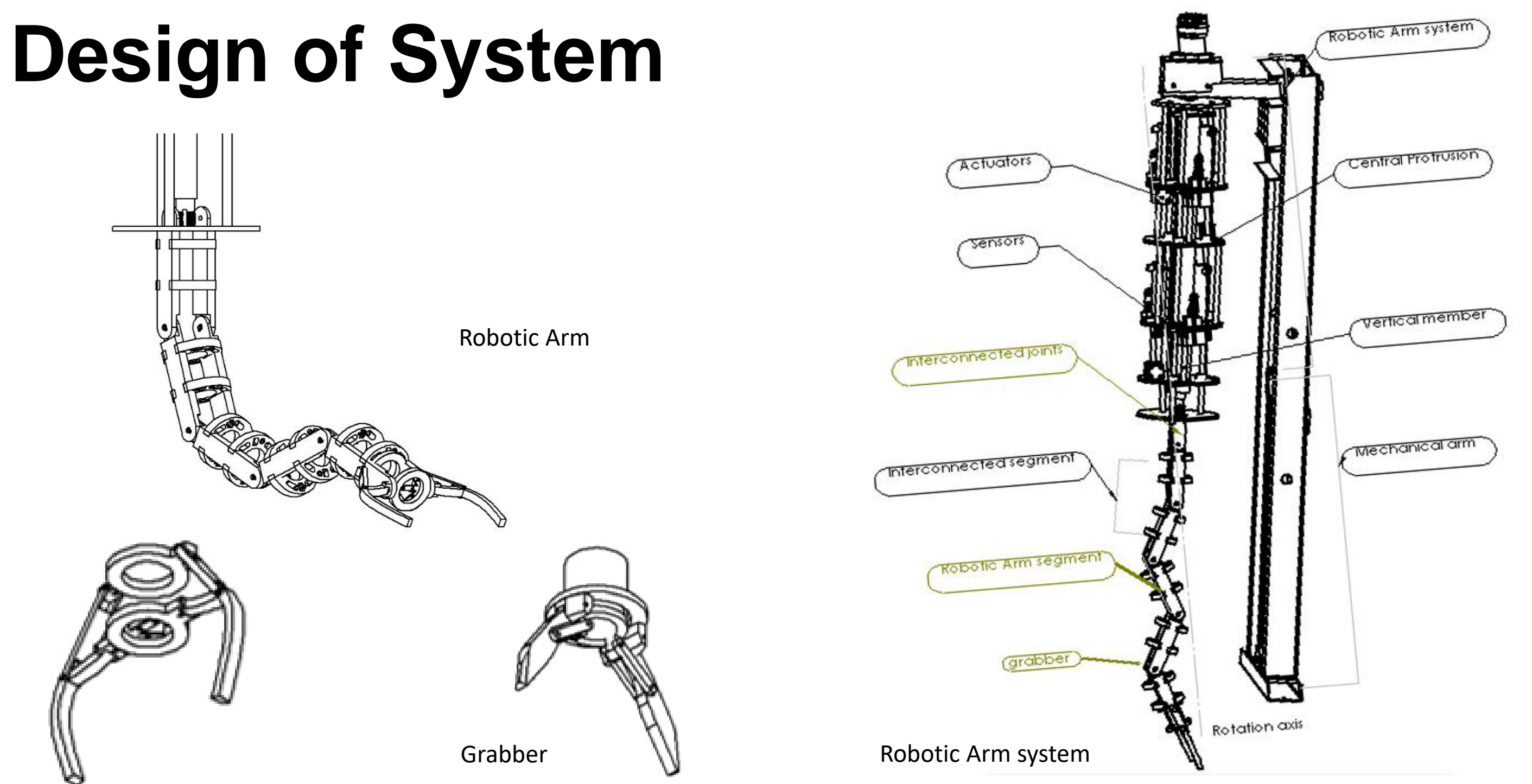
Introduction

- Use of robots to clean Manholes, Sewers, transportation lines, Tanks & Confined spaces is a rare equipment.
- It can eliminate the deadly practice of manual scavenging, prevent exposure to toxic gases, fluids, and prevent from infections inside the manholes
- Robotic scavenging improve efficiency and quality of sanitation using advanced technologies, sensors & reduces environmental impacts of sewage disposal.
- ArcRobotics has developed a Limber robotic arm system that can dive inside the sewer chambers and transportation lines to prevent direct intervention with Hazardous waste.

A Robotic arm to clear clogging and debris



Design of System



Is Cleaning a sole responsibility of sewer Workers ?

Let's Reduce Inequality & Improve human working conditions



krait

Advanced Robotic Solution For Cleaning Sewer Chambers

Powered by Tata Ace Gold



Characteristic and Features

Robotic Grabber



- Motion – Multidirectional
 - Approach – Complete chamber
 - Operation – Pluck out silt
- Advantage:
- 4 vision to look inside
 - Collect debris from inlet- outlet pipe.

Automatic jetting



- Flexible, Robotic & ejector based
- Inlet - outlet .
- Velocity based cleaning
- Robotic movement to guide nozzle.
- Robotic integrated jetting

L1 Type

Problem emerged when the clogging happens due to small debris and waste which block the sewer flow through the outlet pipes. Such blockage requires few hand tools and grabber machines.



Tools Required
Hand Tools
Grabber Machine

L2 Type

Problem occurs when heavy deposition of debris & intrusion of roots in the chamber clogs the inlet pipe & waste is deposited inside the outlet pipe, which overflows the sewer. Such L2-type problems cleaning requires multiple operations including Grabber Machines, Jetting Machines, and Hand Tools.



Hand Tools
Grabber Machine
Jetting Machine

L3 Type

Type problems are the worst kind of clogging which is nearly impossible to be cleaned with light equipment and machinery, such clogging requires all mechanised solutions to clear debris and waste from Chambers, outlet pipes, and Inlet pipes to ensure the smooth running of waste management systems



Grabber Machine
Jetting Machine
Suction Machine

