

S.P.A.R.K. Crawler

Surface Preservation And Rust Killer

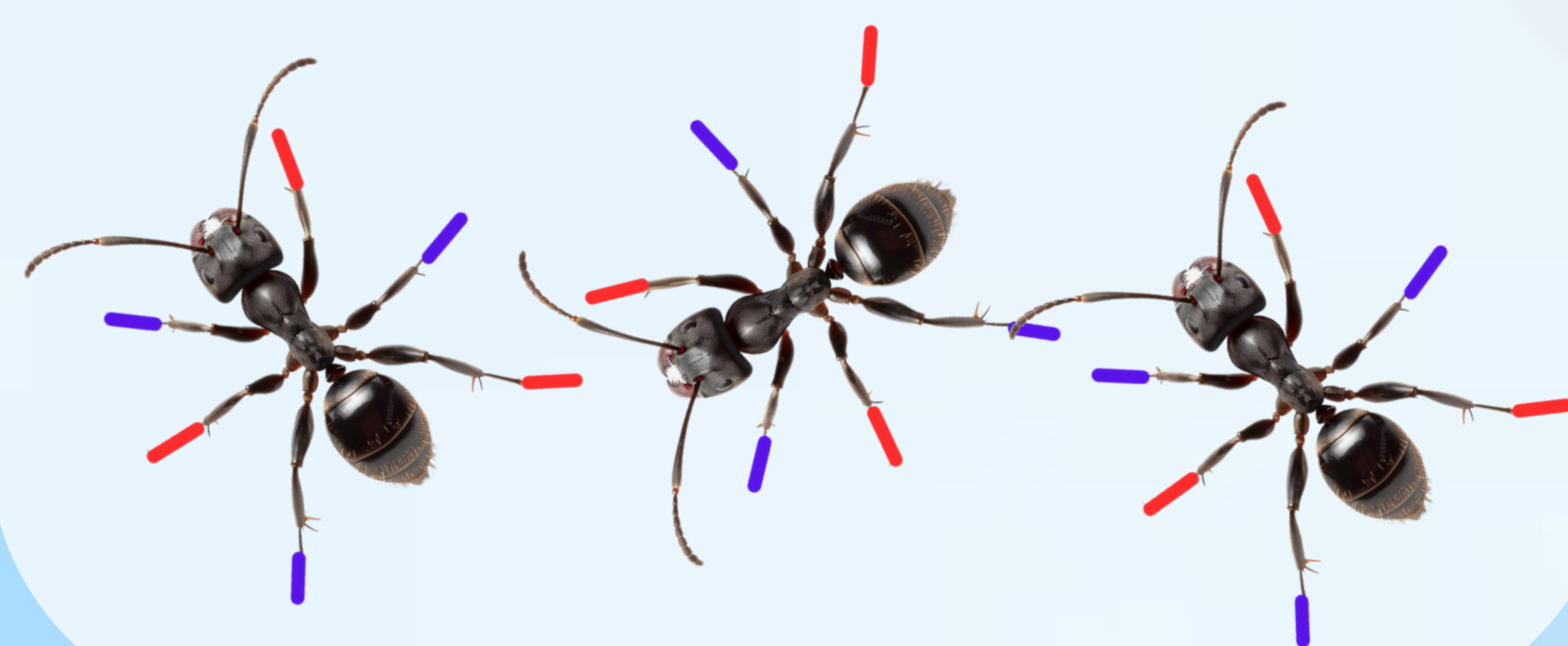
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Why S.P.A.R.K.?

Aircraft maintenance workers performing corrosion repair are at increased risk of exposure to hazardous chemicals associated with long-term adverse health effects. Substances such as hexavalent chromium (Cr(VI)) and isocyanates may still present significant risks despite the use of Personal Protective Equipment.

Locomotion

The S.P.A.R.K. Crawler walking method was designed after the locomotion of an ant. Ants have a gait that consists of three legs moving at once, two from one side and one from the other. This ensures even weight is distributed.



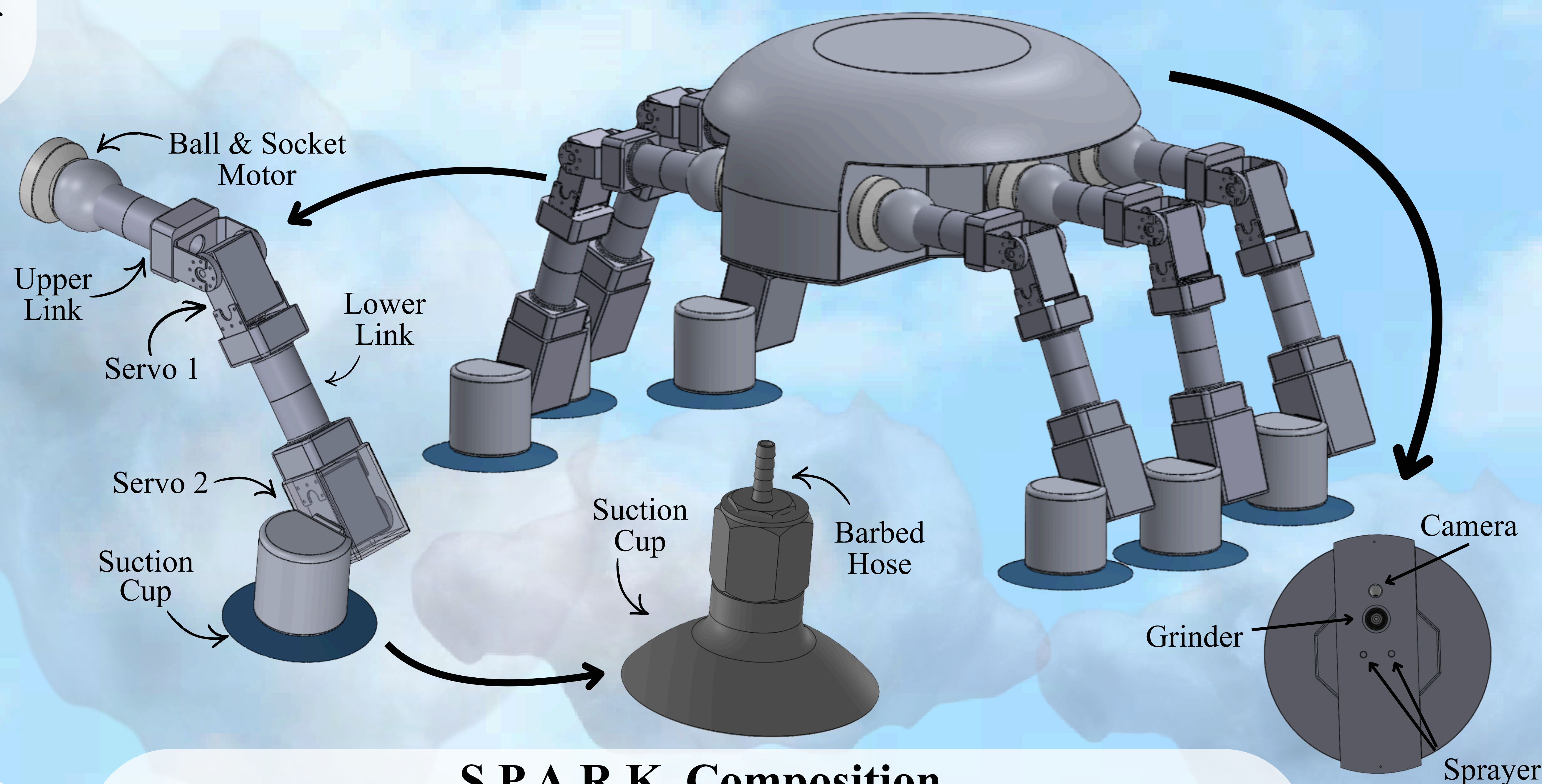
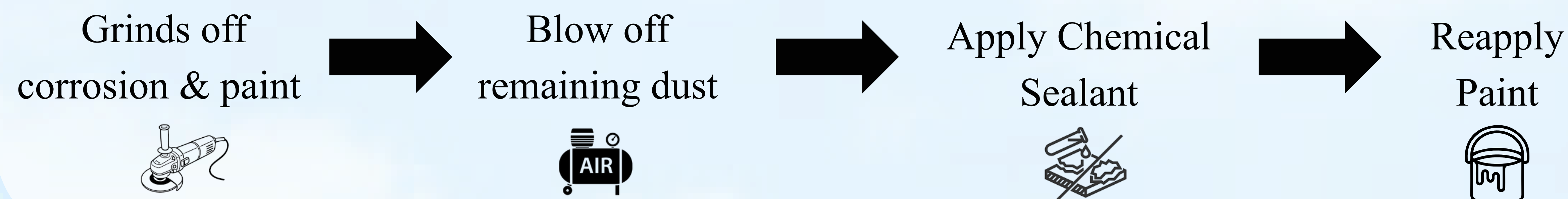
\$22,000 in saving per year
 \$73,600 in annual saving per year



What is S.P.A.R.K.?

S.P.A.R.K. is an autonomous crawler that targets pitting corrosion. S.P.A.R.K. is a two-part system to identify corrosion and remove and repair corrosion on any side of the aircraft.

Repair Process



S.P.A.R.K. Composition

Chassis
 The chassis houses key components, including the electronics, the grinder, onboard camera, sprayers, and tanks for chemical sealants and paint.

Leg
 The leg consists of two servo motors and a ball & socket motor. Ball & Socket in the shoulder, one at the knee, and one on the ankle to ensure the ant-like motion. The shoulder has two degrees of freedom to get front and sideways motion.

Foot
 Each of the six legs is equipped with an integrated suction cup at its base, enabling S.P.A.R.K. to securely adhere to the aircraft surface.

Timeline

- 2026** ✦
 - Prototype Development
 - Suction-Walking Testing
- 2027** ✦
 - Chassis Testing
 - Crawler Design Improvement
- 2028** ✦
 - Spot Corrosion Testing
 - Paint & Sealant Testing
- 2029** ✦
 - Final Corrosion Testing
 - Initial Marketing
- 2030** ✦
 - Prototype Development for Filiform Corrosion

