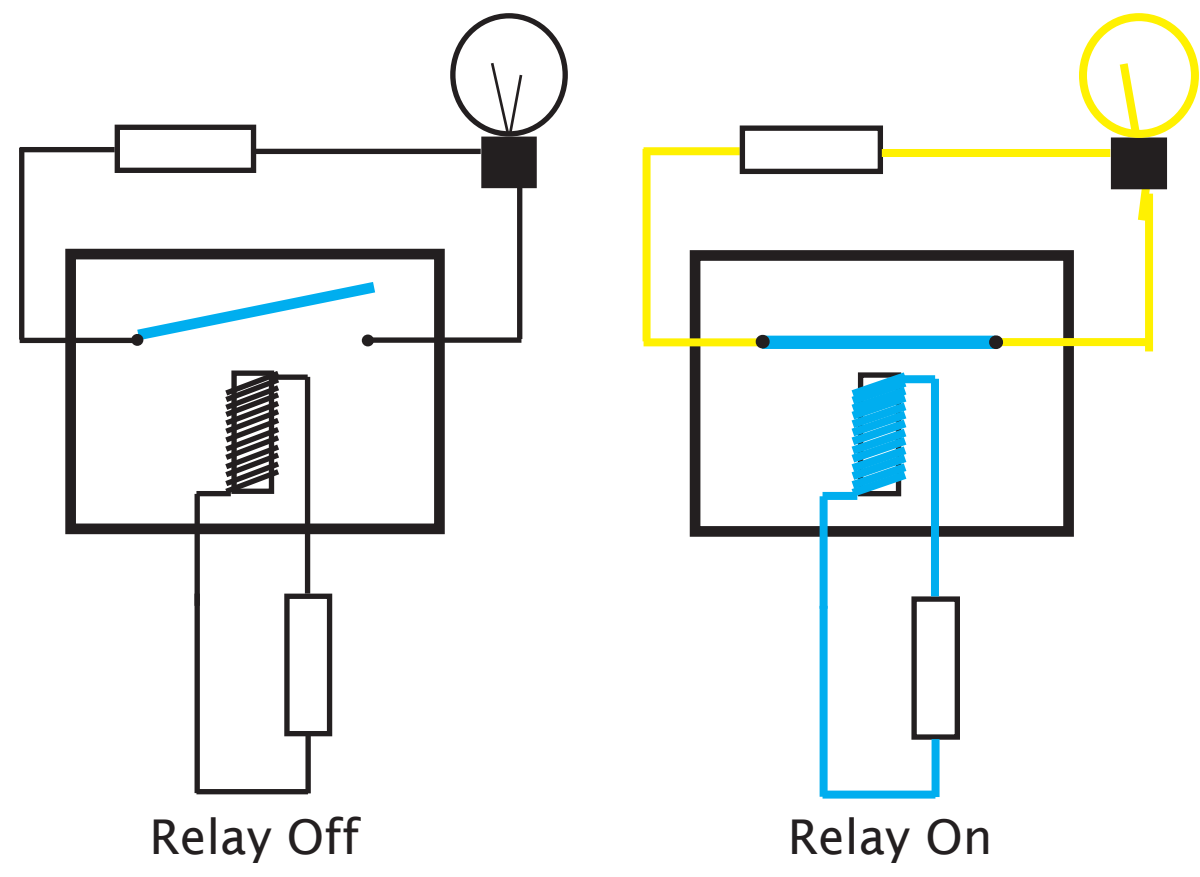


An Innovative Actuator to be Used In Aerospace Applications



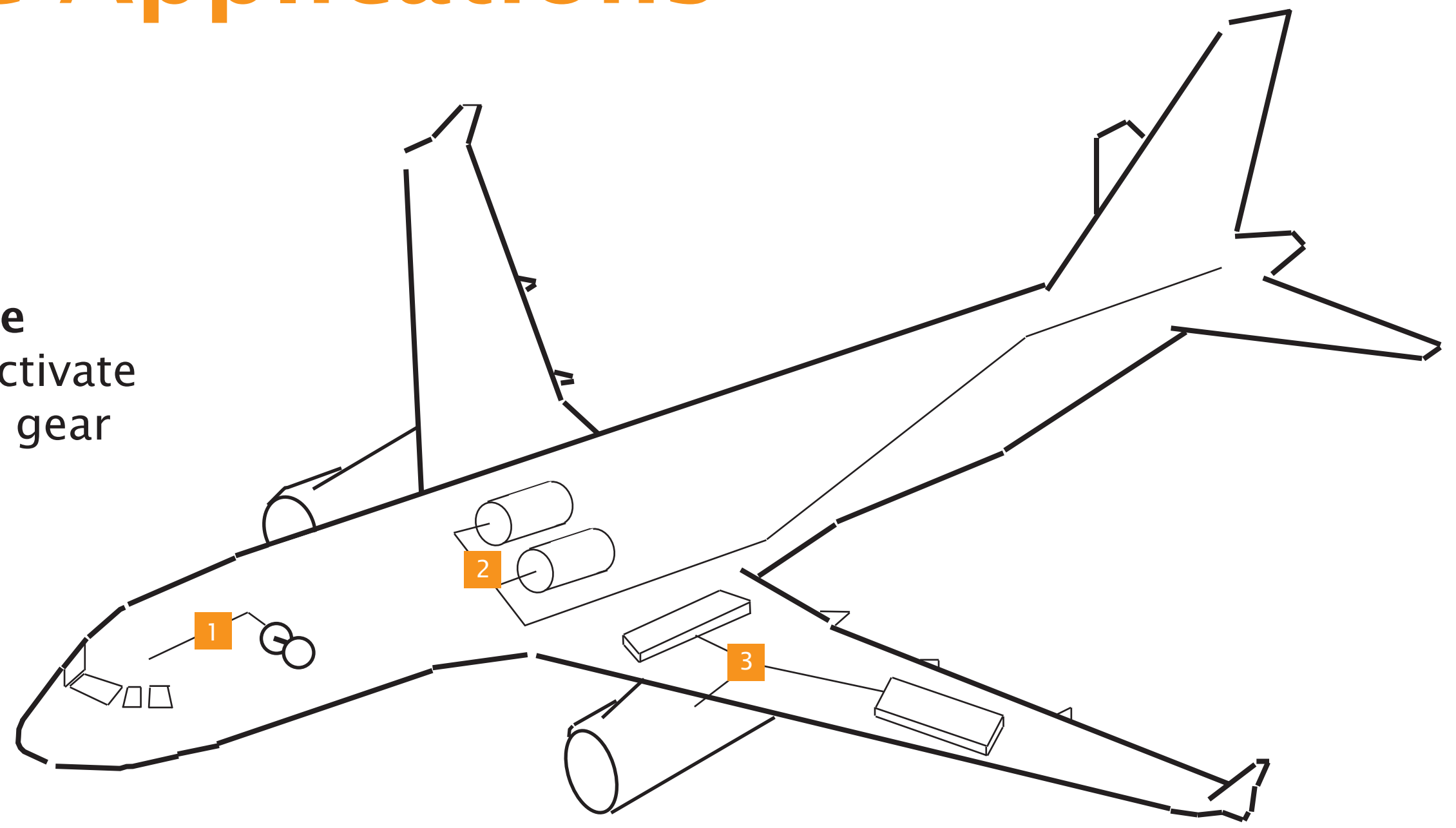
Relays are electrically activated switches that allow current to flow when turned on.

Actuators are the mechanisms that flip the switch.

1 Purpose
To activate landing gear

2 Purpose
To activate AC

3 Purpose
To manage fuel supply

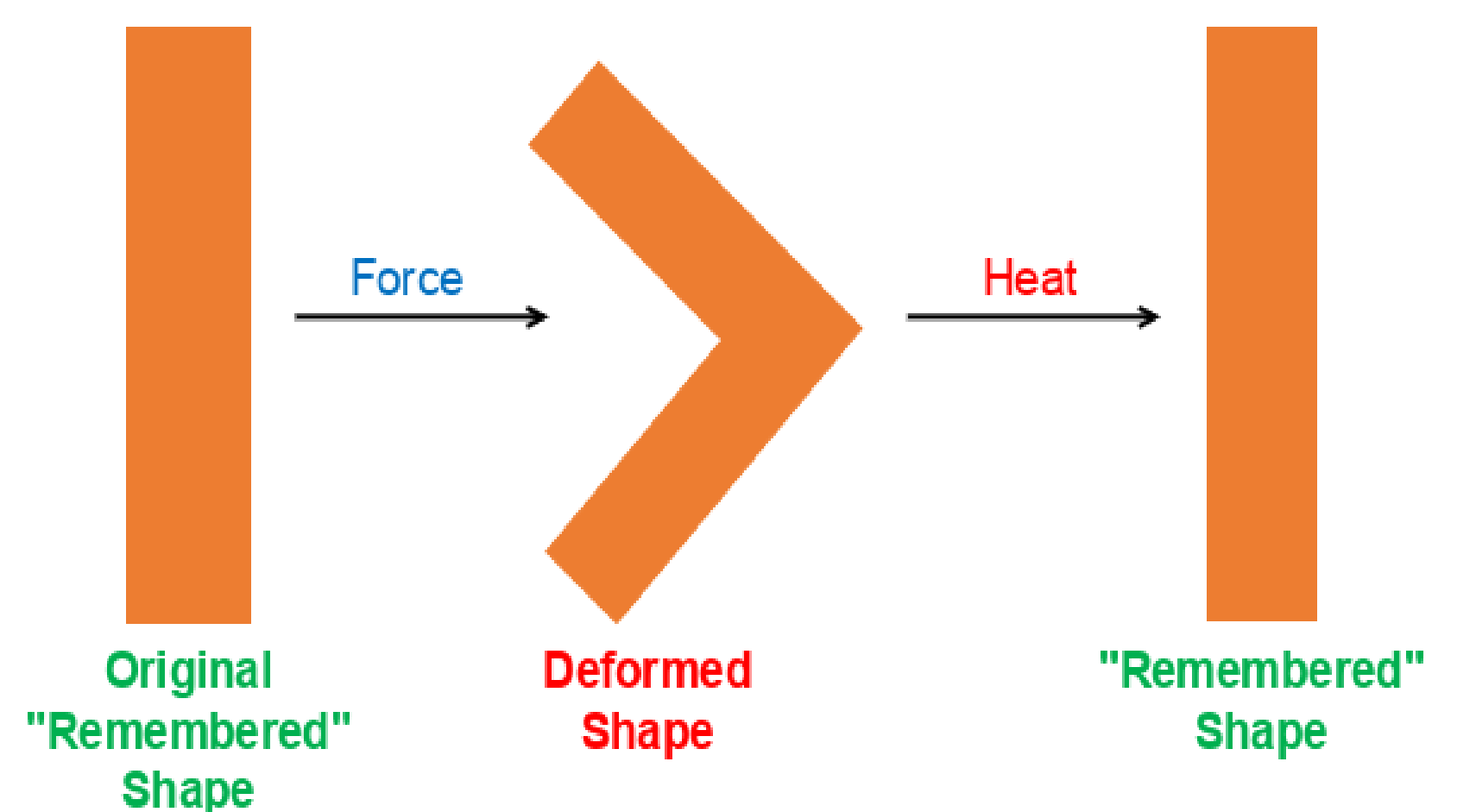


Our goal was to create an innovative actuator design to be used in aircrafts, that is **reliable, low weight and low power.**

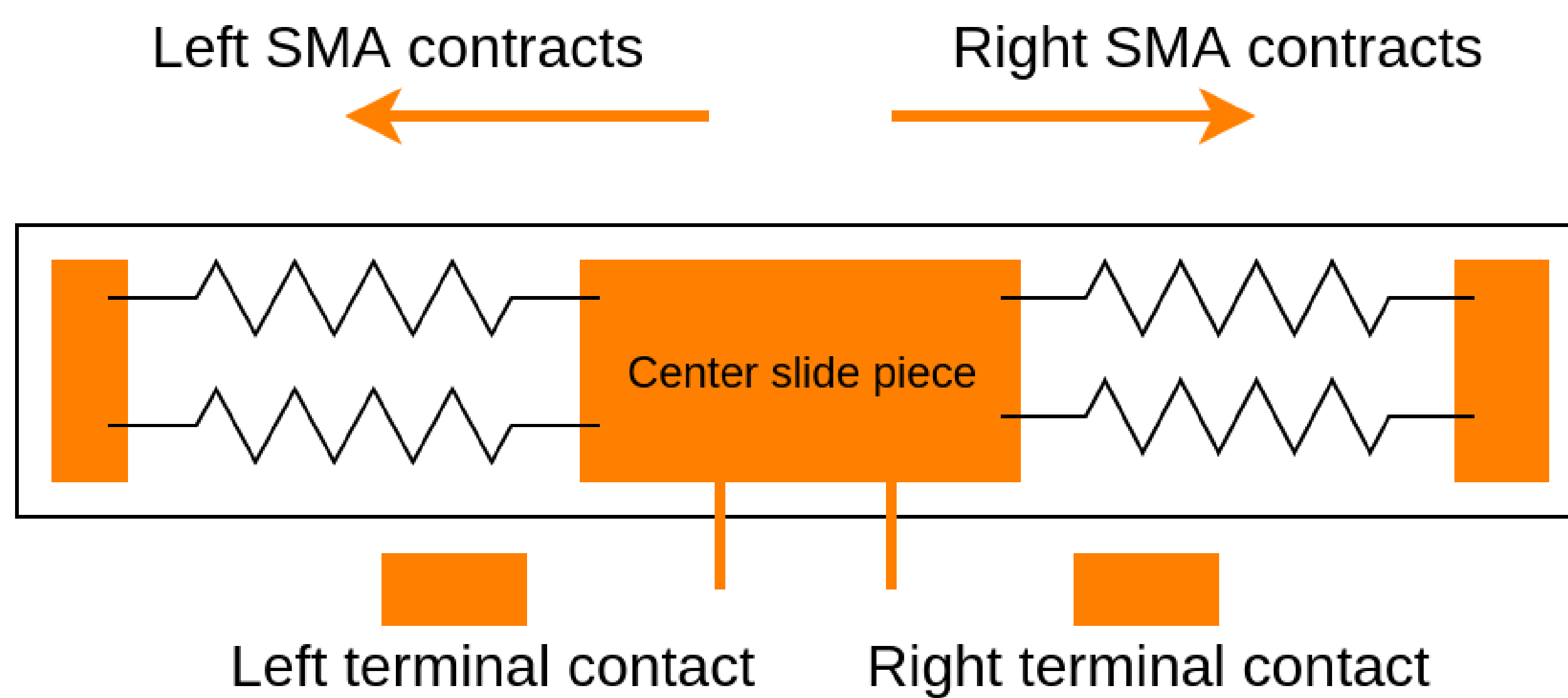
Shape Memory Alloy (SMA)

How It Works

An SMA will **remember** its current shape when **heated** above a certain temperature. When it is **cooled**, it can be **deformed** to any shape. Upon being heated again, it returns to its remembered shape. This quality is ideal due to its **low activation energy, speed and small size.**

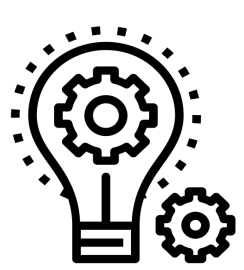


Final Design

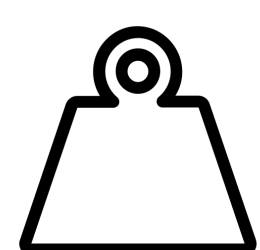


The actuator is made up of three portions, two sets of SMA's, a center slide piece and the electrical contacts. Each set of SMA's are powered independently to pull the center slide piece, by contraction, to its respective side.

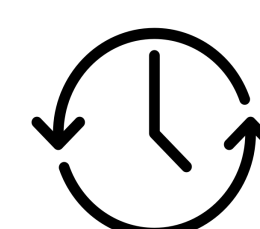
Accomplishments



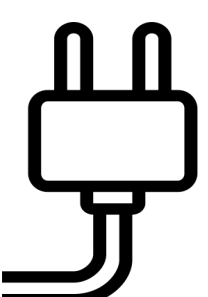
Uses a novel material to actuate a Relay



Reduces weight by **80%**



Lifespan of 35,000 cycles



Operates with standard power



Withstands environmental and use forces