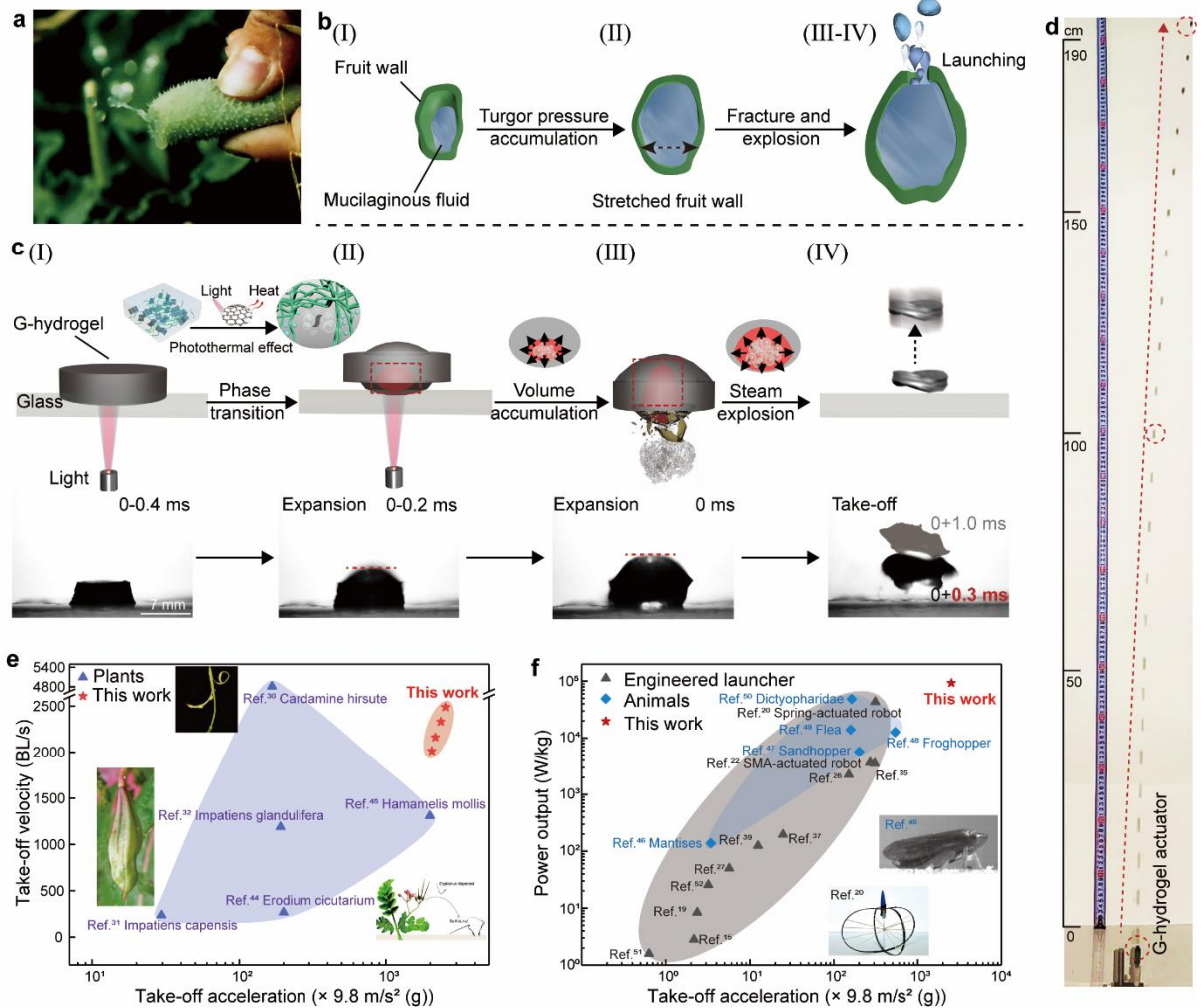


Appendix

Fig.1



The graphic illustrates the concept of ASEF power amplification and the performance of the hydrogel launcher:

a: Image of the pressurised fluidic squirting seed dispersal mechanism of *Ecballium elaterium* (squirting cucumber).

b: Illustration of the power amplification mechanism due to fracture in the squirting cucumber: during its growth, its pulp transforms into mucilaginous liquid mass, causing the fruit wall to stretch significantly under pressure. When the internal pressure reaches a critical point, it results in a fracture, ejecting seeds over a considerable distance, at high velocity and acceleration.

c: Inspired by the power amplification mechanism of the squirting cucumber, the CUHK

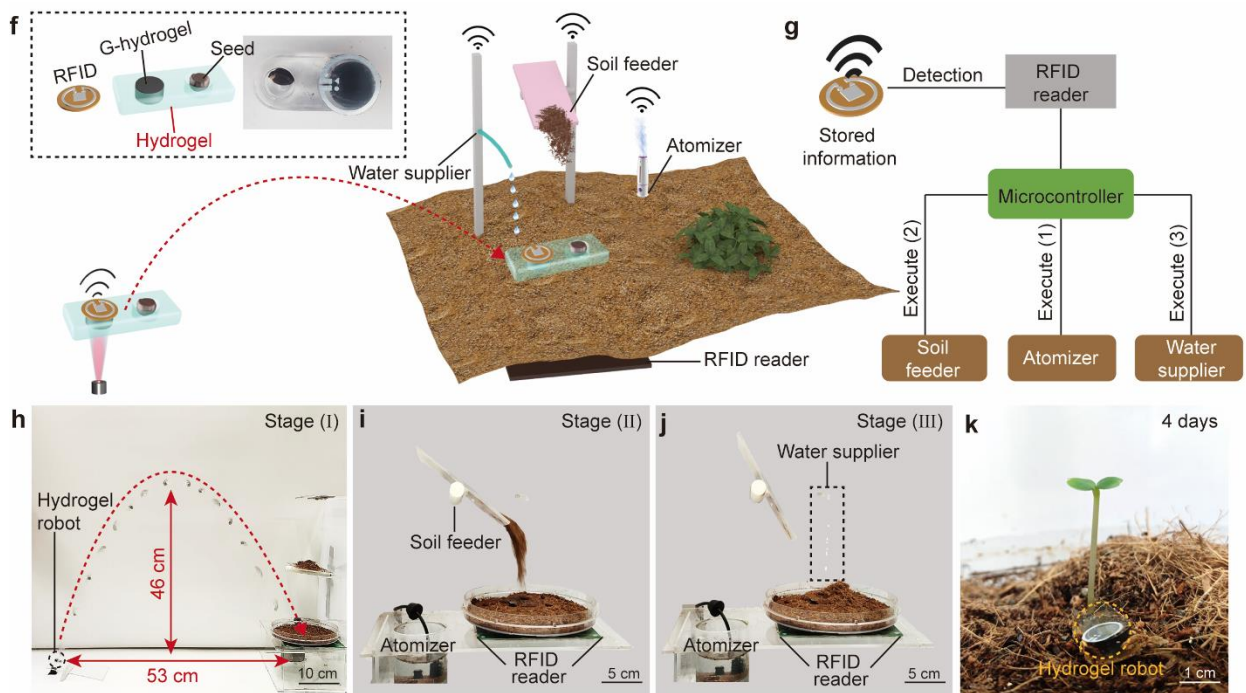
team developed a light-driven ASEF-based hydrogel launcher that achieves fracture-induced power amplification. The image shows the launcher's mechanism and the ejection process.

d: The ejection height of the launcher.

e: Comparison of the launching performance of the hydrogel launcher with plants exhibiting ejection behaviours in nature.

f: Comparison of the launching performance of the hydrogel launcher with other engineered robots and animals exhibiting similar behaviours in nature.

Fig.2



f: Schematic diagram of the automated seeding robot. The top left image shows the components and final product.

g: Illustration of how the robot operates.

h-k: The automated seeding process, including (h) driving to the designated location, (i) dispersing soil, (j) watering and (k) seed growth.