

Remote-controlled Weeder

Utility

This is a remotely controlled robotic weeder developed to reduce the labour-intensive and time-consuming manual weeding operation commonly practiced in row crops of developing nations. The system consists of an electronic control unit, a four-wheel drive prime mover, and a sweep-type weeding unit, operated remotely through a handheld wireless control kit. The prime mover is powered by a 24 V, 42 Ah power supply and equipped with DC motors, motor drivers, GPS module, flight controller, and receiver to drive four wheels and support electronic components. The weeding unit comprises two sweep tynes capable of uprooting and cutting weeds up to a working width of 350 mm, with a remotely controlled vertical movement mechanism for depth adjustment. The robotic weeder was tested in maize crop with 450 mm row spacing under raised bed and flatbed field conditions.



Component	Specification / Details
Approximate weight:	110 kg
Power Supply	Battery: 24 V, 42 Ah lead-acid
	Power: 100 W
Flight Controller	Pixhawk 2.4.8
Transmitter & Receiver	FlySky FS-T6 (6 Channel) Transmitter with FS-R6B Receiver
Weeding Unit	Geared DC motor: 01 No.
	Motor driver (Sabertooth): 01 No.
	Approximate weight: 20 kg
Weeding Tool	Sweep tynes: 160 mm (2 Nos.)
	Width of cut: 350 mm
Performance (Raised Bed Field)	Weeding efficiency: 81.6%
Performance (Flat Bed Field)	Weeding efficiency: 74.9%

Design: ICAR-CIAE, Bhopal

Commercialization Status: Ready for Commercialization

Proposed stakeholders: Farmers, Custom hiring operators and manufacturers.

Head, Technology Transfer Division

ICAR-Central Institute of Agricultural Engineering, Bhopal-462038

Telephone: +91-755-2521133, 2521134

E-mail: directorciae@gmail.com, headtttd@gmail.com Website: <https://ciae.res.in>