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DRONE AS PROCESSING MACHINE

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DRONE AS PROCESSING MACHINE

Technical task:

Mechanical processing or joining operations, e.g. screwing, require a rotary movement (screwing, drilling or similar) or a linear movement (milling or similar). For this purpose a tool must be guided very precisely to the workpiece to be machined. This can be done by a linear guide (X,Y,Z system) or by a robot. And the workpiece must be located precisely in the holder. And accessibility for the tool must be ensured, e.g. from above.

Initial situation:

Nowadays, drones are used in many applications, e.g. for flight simulation or aerial photography. However, the use of drones as processing machines has so far remained largely untouched, which is why the focus of this invention disclosure is on this field of application.

Solution:

A drone is used as a tool holder into which the tool is clamped. With an interchangeable holder, different tools could be used and thus different machining operations could be performed. The movement of the drone itself can be used to feed the tool to the workpiece as well as for actual machining. This means: the drone flies to the corresponding position and in the example of screwdriving it then rotates around the axis of the screw and thus turns it in. The same applies, transferred, to other mechanical movements.

The actual position can be determined by the drone via its onboard camera. The workpiece only needs to be clamped approximately so that it cannot slip due to the moment of the mechanical movement.

Advantages:

- Simpler workplace design
- Flexible use of the tools
- Simple adjustment for changing drilling or screw patterns