(12) INNOVATION PATENT
(19) AUSTRALIAN PATENT OFFICE

(11) Application No. **AU 2020102449 A4**

(54) Title
Drone based 3D printing with enhanced speed by varying the material dispensing

(51) International Patent Classification(s)
B29C 64/20 (2017.01)
B29C 64/118 (2017.01)
B29C 64/393 (2017.01)
B33Y 10/00 (2015.01)
B33Y 30/00 (2015.01)
B64C 39/02 (2006.01)
B64D 1/18 (2006.01)

(21) Application No: **2020102449**
(22) Date of Filing: **2020.09.27**

(45) Publication Date: **2020.11.12**
(45) Publication Journal Date: **2020.11.12**
(45) Granted Journal Date: **2020.11.12**

(71) Applicant(s)
Balaji Devarajan;Balaji Devarajan;Saravanan M;Ajayan J;Veerasamy B;Jubair Ahmed L;Gokulavasan B;Priyadharshini Muthukrishnan

(72) Inventor(s)
Devarajan, Balaji;Devarajan, Balaji;M., Saravanan;J., Ajayan;B., Veerasamy;L., Jubair Ahmed;B., Gokulavasan;Muthukrishnan, Priyadharshini

(74) Agent / Attorney
Balaji Devarajan, 22 roath place, Prospect, NSW, 2148, AU

ABSTRACT:

The additive manufacturing requires faster printing and bigger printing of components are the challenges faced by this industry. The solution tried out to resolve this issue is variable nozzle drone assisted additive manufacturing. In which, the drone will print bigger components without effecting (or) increasing the machine size. The variable nozzle assists in printing in faster manner. This combination resolves the issue of printing bigger and faster way. The drone and variable head control units are synchronized and get the input from the STL file itself to establish this effectively.

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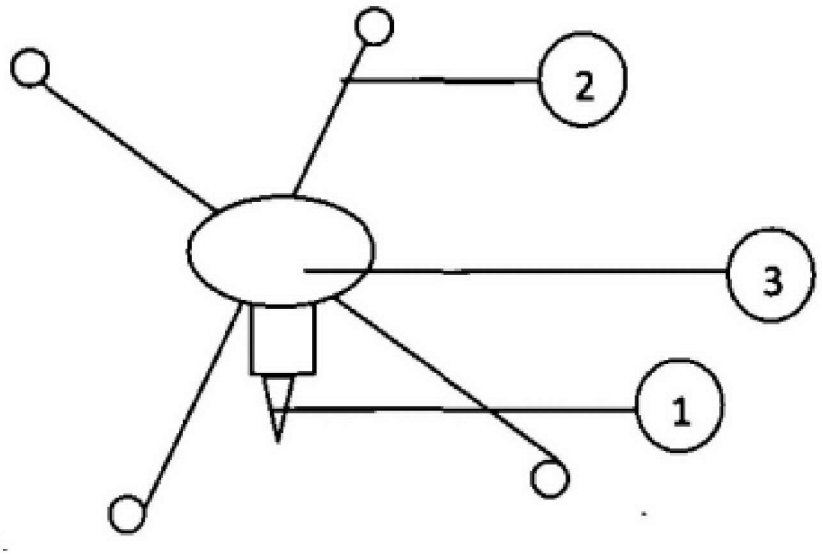

Figure 1

Applicants Name

Balaji Devarajan

M. Saravanan

Dr. J. Ajayan

B. Veerasamy

Dr. L. Jubair Ahmed

B. Gokulavasan

Dr. M. Priyadharshini

Editorial Note

2020102449

There is only three pages of the description

TITLE OF THE INVENTION:

Drone based 3D printing with enhanced speed by varying the material dispensing

FIELD OF THE INVENTION:

The present invention relates to the field of additive manufacturing particularly using drone along with having additional control in varying nozzle in material dispensing.

PRIOR ART FOR THE INVENTION:

1) 201641044021, Indian patent titled "Variable Nozzle head for Additive Manufacturing" has been used the concept of varying the nozzle during the printing.

2) 201641034884, Indian patent titled, "Drone Assisted Additive Manufacturing" has been employed drone in the additive manufacturing.

wherein the present invention additionally contributing towards technical efficiency, additive manufacturing now growing in much versatile manner. As the prior-art' stated "201641044021" variable nozzle control is attempted by the inventor. In addition to that, the overall control of the drone as well as the variable nozzle control has been a hectic task to make it possible to co-ordinate. That new inventive technical efficacy is being additionally added in the present invention. Even in this the normal CAD file is converted into .STL file which supports (or) provides input to the printing head (i.e,) in layer thickness control. In the present invention, addition to that controlling the drone movement and also the nozzle which dispenses the material with varying rate. As per the 201641034884 drone is directly controlled by .STL file input.

OBJECTS OF THE INVENTION:

The primary object of the present invention is to build a component faster and bigger with z-axis accuracy.

SUMMARY OF THE INVENTION:

In the present invention is the combination of drone assisted additive manufacturing and varying the material dispensing through the printing head for manufacturing. Generally controlling drone using .STL file and variable nozzle control using .STL file itself is a technically sophisticated output. In this case, simultaneously taking control over the drone

movement, layer thickness and as well as varying the nozzle to dispense the material. That kind of technical efficacy is being added in this invention.

BRIEF DESCRIPTION OF DRAWING:

Fig-1 is representing the Drone based 3D printing with enhanced speed by varying the material dispensing

Fig-2 is representing the varying the material dispensing

DETAILED DESCRIPTION:

The Drone based 3D printing with enhanced speed by varying the material dispensing provides newer insight in building bigger components, without increasing the size of the machine. Along with this varying the printing material which contributes in increasing the speed of the printing.

In the present invention the combination of both drones based with variable nozzle printing, become more sophisticated, but prints bigger objects (or) components in much faster rate. The drone (2) shown in the figure 1, comprises of filament (3) along with variable nozzle unit (1). In which, specifically figure 2 is a part of figure 1 comprises of variable nozzle (4) and control unit (5).

The CAD (or) 3D images converted into .STL file format that is input to the drone and as well additional input the variable nozzle unit. Once the input through the controller to the drone (2), the filament (3) which is along with melting unit send the melted printing material to the variable nozzle unit (1), this has additional control unit (5), which always synchronize with drone control unit (2), which altogether works together to print the component. This combination of drone (2) control unit and the variable nozzle control unit (5) overall increases the printing speed along with bigger components.

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CLAIMS:

1) We claim,

A drone based 3D printing with enhanced speed by varying the material dispensing: comprises of,

a variable nozzle (1);

at least a drone (2);

a filament (3);

a variable nozzle (4); and

a variable nozzle control unit (5)

wherein the drone (2) gets the input from .STL file format which gives the input filament (3) and melting unit which is inbuilt in the filament (3) unit,

wherein this filament (3) unit gives the optimum printing material with synchronizes with the variable nozzle control unit (5) and the final nozzle (4) prints.

2) A drone based 3D printing with enhanced speed by varying the material dispensing as claimed in claim 1, it has synchronized control with drone (2) control unit and variable nozzle control unit (5).

3) A drone based 3D printing with enhanced speed by varying the material dispensing as claimed in claim 2, it works effective together, so that bigger component with faster printing is achieved with z-axis accuracy.

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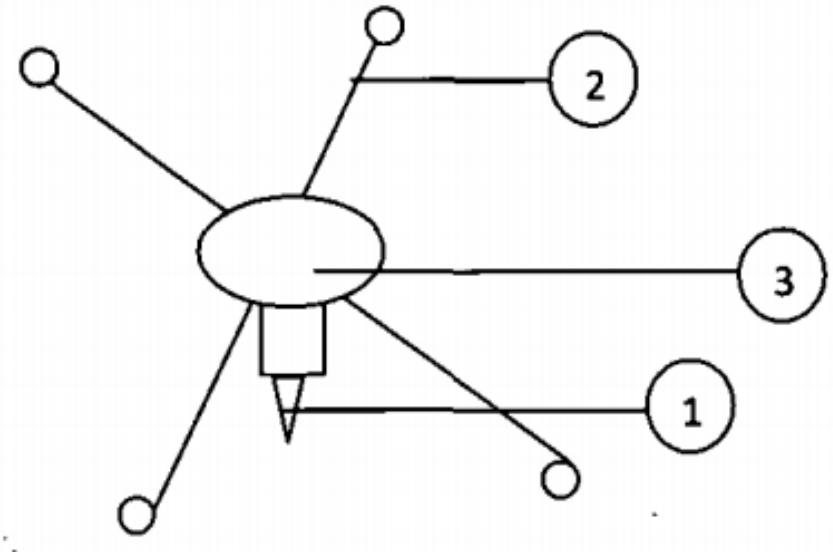

Figure 1

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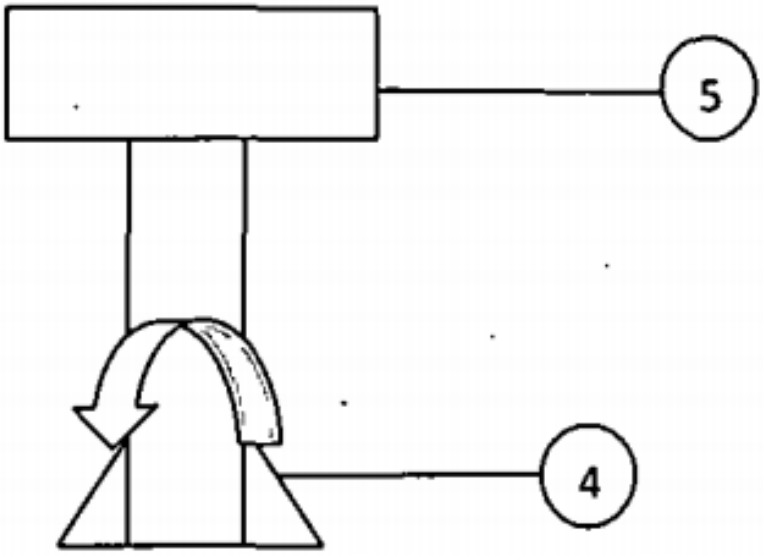

Figure 2

Applicants Name

Balaji Devarajan

M. Saravanan

Dr. J. Ajayan

B. Veerasamy

Dr. L. Jubair Ahmed

B. Gokulavasan

Dr. M. Priyadharshini