

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202241028202 A

(19) INDIA

(22) Date of filing of Application :17/05/2022

(43) Publication Date : 27/05/2022

(54) Title of the invention : AUTOMATIC AIRCRAFT TAXING SYSTEM

(51) International classification :H04B0010116000, B64C0025400000, G08G0005060000, B64C0001000000, B64F0001000000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

(71)Name of Applicant :  
**1)Hindusthan College of Engineering and Technology**  
Address of Applicant :Hindusthan College of Engineering and Technology, Valley Campus, Pollachi Highway, Coimbatore, Tamilnadu, India 641032 -----  
-----

**Name of Applicant : NA**  
**Address of Applicant : NA**

(72)Name of Inventor :  
**1)Dr.Gopinathan.V.T**  
Address of Applicant :Associate Professor& Head /Aero, Hindusthan College of Engineering and Technology, Valley Campus, Pollachi Highway, Coimbatore, Tamilnadu, India 641032 -----  
-----

**2)Mr.Arun Raja.K.K**  
Address of Applicant :Assistant Professor /Aero, Hindusthan College of Engineering and Technology, Valley Campus, Pollachi Highway, Coimbatore, Tamilnadu, India 641032 -----  
-----

**3)Mr.V.Saravanakumar.V**  
Address of Applicant :Assistant Professor/Aero, Hindusthan College of Engineering and Technology, Valley Campus, Pollachi Highway, Coimbatore, Tamilnadu, India 641032 -----  
-----

**4)Mr.Sivaraman S**  
Address of Applicant :Assistant Professor/ Aero, Hindusthan College of Engineering and Technology, Valley Campus, Pollachi Highway, Coimbatore, Tamilnadu, India 641032 -----  
-----

**5)Hasta Vikram P**  
Address of Applicant :Hindusthan College of Engineering and Technology, Valley Campus, Pollachi Highway, Coimbatore, Tamilnadu, India 641032 -----  
-----

**6)Harish R**  
Address of Applicant :Hindusthan College of Engineering and Technology, Valley Campus, Pollachi Highway, Coimbatore, Tamilnadu, India 641032 -----  
-----

**7)Aravinth Kumar S**  
Address of Applicant :Hindusthan College of Engineering and Technology, Valley Campus, Pollachi Highway, Coimbatore, Tamilnadu, India 641032 -----  
-----

**8)Selvarasu R**  
Address of Applicant :Hindusthan College of Engineering and Technology, Valley Campus, Pollachi Highway, Coimbatore, Tamilnadu, India 641032 -----  
-----

(57) Abstract :  
This idea depends on a programmed airplane taxiing framework that utilizes a li-fi sensor integrated into the arrival stuff to consider programmed airplane taxiing. This is achieved by controlling the airplane during the taxiing method with a microchip chip. AATS means to build transporter and air terminal security and efficiency while bringing down the ecological impact of ground activities. Alongside ecological supportability benefits, the framework will assist with keeping the bank balance solid. As per AATS, this method can extraordinarily decrease impacts. Besides, with regards to Aircraft fuel, there are critical reserve funds to be had. New problematic innovations like the airplane taxiing framework created by ATS will assist air terminals and carriers with meeting their carbonless burdening objectives.

No. of Pages : 5 No. of Claims : 4

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202241028200 A

(19) INDIA

(22) Date of filing of Application :17/05/2022

(43) Publication Date : 27/05/2022

(54) Title of the invention : FABRICATION AND CHARACTERIZATION OF CERAMIC REINFORCED ALUMINIUM MATRIX COMPOSITES

(51) International classification :C22B0021000000, B22F0003100000, G01N0021840000, B29C0064124000, C22C0014000000  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

(71)Name of Applicant :

**1)Hindusthan College of Engineering and Technology**

Address of Applicant :Hindusthan College of Engineering and Technology, VALLEY CAMPUS, POLLACHI HIGHWAY, COIMBATORE-641032 -----

Name of Applicant : NA

Address of Applicant : NA

(72)Name of Inventor :

**1)Dr.Gopinathan.V.T**

Address of Applicant :Associate Professor& Head /Aero, Hindusthan College of Engineering and Technology, VALLEY CAMPUS, POLLACHI HIGHWAY, COIMBATORE-641032 -----

**2)Mr.Arun Raja.K.K**

Address of Applicant :Assistant Professor/Aero, Hindusthan College of Engineering and Technology, VALLEY CAMPUS, POLLACHI HIGHWAY, COIMBATORE-641032 -----

**3)Mr.V.Saravanakumar.V**

Address of Applicant :Assistant Professor/Aero, Hindusthan College of Engineering and Technology, VALLEY CAMPUS, POLLACHI HIGHWAY, COIMBATORE-641032 -----

**4)Mr.Sivaraman S**

Address of Applicant :Assistant Professor/ Aero, Hindusthan College of Engineering and Technology, VALLEY CAMPUS, POLLACHI HIGHWAY, COIMBATORE-641032 -----

**5)SANGARALINGAM N**

Address of Applicant :Hindusthan College of Engineering and Technology, VALLEY CAMPUS, POLLACHI HIGHWAY, COIMBATORE-641032 -----

**6)SURIYA K**

Address of Applicant :Hindusthan College of Engineering and Technology, VALLEY CAMPUS, POLLACHI HIGHWAY, COIMBATORE-641032 -----

**7)YOGA PRAKASH M**

Address of Applicant :Hindusthan College of Engineering and Technology, VALLEY CAMPUS, POLLACHI HIGHWAY, COIMBATORE-641032 -----

**8)NAGAMANICKAM N**

Address of Applicant :Hindusthan College of Engineering and Technology, VALLEY CAMPUS, POLLACHI HIGHWAY, COIMBATORE-641032 -----

(57) Abstract :

7075 T6 Alloy are the major material is used in MMC it has high strength. It does not have the same level of corrosion resistance or weld ability that other common alloys due, its resistance to stress and strain makes it highly useful in aerospace applications where it allows for weight savings over steel. Stir casting usually involves prolonged liquid reinforcement contact, which can cause substantial interface reaction. It's widely used technique for research Aluminium matrix composites (AMCs) are noted for their unique combination of mechanical, physical and chemical properties which are scarcely attainable with the use of mono-lithic materials. This has made AMCs a strong competitor to steel and other relevant alloy for use in a wide range of engineering applications. AMCs are currently applied in the design of components for automobiles, aircrafts, marine structures and facilities, defensive assemblies, sports and reaction among many others. Other notable advantages of AMCs are the relatively low cost of processing and its amenability to production utilizing processing techniques applied for the production of conventional monolithic metallic alloys. Currently, the design of high performance aluminium based composites Al7075 and RHA, MMC which significantly reduced cost is receiving much attention from materials researchers.

No. of Pages : 5 No. of Claims : 4

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202241028224 A

(19) INDIA

(22) Date of filing of Application :17/05/2022

(43) Publication Date : 27/05/2022

(54) Title of the invention : DESIGNING OF WIND TULIPS FOR HARVESTING RENEWABLE ENERGY USING URBAN WINDS

<p>(51) International classification :F03D0003060000, F03D0003000000, F03D0003020000, F03D0003040000, F03D0001060000</p> <p>(86) International Application No :NA Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA Filing Date :NA</p> <p>(62) Divisional to Application Number :NA Filing Date :NA</p>	<p>(71)Name of Applicant : <b>1)HINDUSTHAN COLLEGE OF ENGINEERING AND TECHNOLOGY</b> Address of Applicant : HINDUSTHAN COLLEGE OF ENGINEERING AND TECHNOLOGY, VALLEY CAMPUS, POLLACHI HIGHWAY, COIMBATORE, TAMIL NADU, INDIA - 641032. ----- <b>Name of Applicant : NA</b> <b>Address of Applicant : NA</b></p> <p>(72)Name of Inventor : <b>1) Dr. GOPINATHAN. V. T</b> Address of Applicant :ASSOCIATE PROFESSOR&amp; HEAD/AERO, HINDUSTHAN COLLEGE OF ENGINEERING AND TECHNOLOGY, VALLEY CAMPUS, POLLACHI HIGHWAY, COIMBATORE, TAMIL NADU, INDIA - 641032. ----- <b>2)Mr. ARUN RAJA. K. K</b> Address of Applicant :ASSISTANT PROFESSOR/AERO, HINDUSTHAN COLLEGE OF ENGINEERING AND TECHNOLOGY, VALLEY CAMPUS, POLLACHI HIGHWAY, COIMBATORE, TAMIL NADU, INDIA - 641032. ---- <b>3)Mr. V. SARAVANAKUMAR</b> Address of Applicant :ASSISTANT PROFESSOR/AERO, HINDUSTHAN COLLEGE OF ENGINEERING AND TECHNOLOGY, VALLEY CAMPUS, POLLACHI HIGHWAY, COIMBATORE, TAMIL NADU, INDIA - 641032. ---- <b>4)Mr. SARAVANAN R</b> Address of Applicant :ASSISTANT PROFESSOR/AERO, HINDUSTHAN COLLEGE OF ENGINEERING AND TECHNOLOGY, VALLEY CAMPUS, POLLACHI HIGHWAY, COIMBATORE, TAMIL NADU, INDIA - 641032. ---- <b>5)ALAN JOHNSON</b> Address of Applicant :HINDUSTHAN COLLEGE OF ENGINEERING AND TECHNOLOGY, VALLEY CAMPUS, POLLACHI HIGHWAY, COIMBATORE, TAMIL NADU, INDIA - 641032. ----- <b>6)ARJUN DHILIP S B</b> Address of Applicant :HINDUSTHAN COLLEGE OF ENGINEERING AND TECHNOLOGY, VALLEY CAMPUS, POLLACHI HIGHWAY, COIMBATORE, TAMIL NADU, INDIA - 641032. ----- <b>7)GOWTHAM S</b> Address of Applicant :HINDUSTHAN COLLEGE OF ENGINEERING AND TECHNOLOGY, VALLEY CAMPUS, POLLACHI HIGHWAY, COIMBATORE, TAMIL NADU, INDIA - 641032. ----- <b>8)HENRY J</b> Address of Applicant :HINDUSTHAN COLLEGE OF ENGINEERING AND TECHNOLOGY, VALLEY CAMPUS, POLLACHI HIGHWAY, COIMBATORE, TAMIL NADU, INDIA - 641032. -----</p>
---	---

(57) Abstract :

The purpose of this study is to increase the performance of tulip turbine aerodynamically. Design of wind tulips using SOLIDWORKS modeling software with implementation of fish scale array on the surface of turbine blades to make Savonius blades aerodynamically more efficient. Presence of fish scale array blades will create delay in boundary layer separation thus reducing drag around the airfoil for low velocity flow regimes. Numerical computations over turbine blades will be carried out to solve flow equations by using ANSYS for favorable boundary conditions. Based on computations results blades will be fabricated. Modified blades will be attached with rotating mechanism to generate power for low velocity flows. Wind tulip is designed to harvest wind power from urban winds. Generated power will be stored in the battery and will be used for useful purposes. Keywords; Vertical axis wind turbine, Savionus turbine, Drag driven turbine, Boundary layer, WindTurbine, Fish scale array, Blade, Solidity, Efficiency .

No. of Pages : 5 No. of Claims : 3

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202241028208 A

(19) INDIA

(22) Date of filing of Application :17/05/2022

(43) Publication Date : 27/05/2022

(54) Title of the invention : EFFECT OF TANGENTIAL GROOVES ON PISTON CROWN OF DIESEL ENGINE AND PONGAMIA BIODIESEL AS A FUEL

(51) International classification :F02B0023060000, F02B0023080000, F02B0031000000, F02F0003260000, F02B0023100000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

(71)Name of Applicant :  
**1)Hindusthan College of Engineering and Technology**  
 Address of Applicant :Hindusthan College of Engineering and Technology, Valley Campus, Pollachi Highway, Coimbatore, Tamilnadu, India 641032 -----  
 -----  
**Name of Applicant : NA**  
**Address of Applicant : NA**

(72)Name of Inventor :  
**1)Dr.Gopinathan.V.T**  
 Address of Applicant :Associate Professor& Head /Aero, Hindusthan College of Engineering and Technology, Valley Campus, Pollachi Highway, Coimbatore, Tamilnadu, India 641032 -----  
**2)Mr.Arun Raja.K.K.**  
 Address of Applicant :Assistant Professor /Aero, Hindusthan College of Engineering and Technology, Valley Campus, Pollachi Highway, Coimbatore, Tamilnadu, India 641032 -----  
**3)Mr.V.Saravanakumar**  
 Address of Applicant :Assistant Professor/Aero, Hindusthan College of Engineering and Technology, Valley Campus, Pollachi Highway, Coimbatore, Tamilnadu, India 641032 -----  
**4)Mr. Magesh kumar M**  
 Address of Applicant :Assistant Professor/ Aero, Hindusthan College of Engineering and Technology, Valley Campus, Pollachi Highway, Coimbatore, Tamilnadu, India 641032 -----  
**5)VIGNESH S**  
 Address of Applicant :Hindusthan College of Engineering and Technology, Valley Campus, Pollachi Highway, Coimbatore, Tamilnadu, India 641032 -----  
 ----  
**6)JAI PREETHAM M**  
 Address of Applicant :Hindusthan College of Engineering and Technology, Valley Campus, Pollachi Highway, Coimbatore, Tamilnadu, India 641032 -----  
 ----  
**7)MURUGAN S**  
 Address of Applicant :Hindusthan College of Engineering and Technology, Valley Campus, Pollachi Highway, Coimbatore, Tamilnadu, India 641032 -----  
 ----  
**8)USMAN ALI S A**  
 Address of Applicant :Hindusthan College of Engineering and Technology, Valley Campus, Pollachi Highway, Coimbatore, Tamilnadu, India 641032 -----  
 ----

(57) Abstract :  
 Tangential grooves have been made on piston crown to enhance the swirl effect. Grooves were made to achieve the increase in swirl intensity for better mixing of fuel and air. Increase in efficiency and reduction of emissions were achieved by enhancing the swirl effect in the cylinder. Swirl motion can have a significant effect on air-fuel mixing, combustion, heat transfer, and emissions. Tangential grooves made on the piston crown have a significant effect on air flow motion in the piston bowl, when the piston approaches the top dead centre. This results in increasing the rate of evaporation, swirl motion of fuel & air and combustion efficiency. It increases the turbulence levels in the combustion bowl, promoting mixing and evaporation of fuel.

No. of Pages : 5 No. of Claims : 5

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202241028195 A

(19) INDIA

(22) Date of filing of Application :17/05/2022

(43) Publication Date : 27/05/2022

(54) Title of the invention : DESIGN AND FABRICATION OF FIRE EXTINGUISHER DRONE USING FIREBALL

(51) International classification :B64C0039020000, H04N0005330000, B64D0047080000, G05D0001100000, G08G0005000000

(86) International Application No :NA  
 Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
 Filing Date :NA

(62) Divisional to Application Number :NA  
 Filing Date :NA

(71)Name of Applicant :  
**1)HINDUSTHAN COLLEGE OF ENGINEERING AND TECHNOLOGY**  
 Address of Applicant : HINDUSTHAN COLLEGE OF ENGINEERING AND TECHNOLOGY, VALLEY CAMPUS, POLLACHI HIGHWAY, COIMBATORE, TAMIL NADU, INDIA - 641032. -----  
**Name of Applicant : NA**  
**Address of Applicant : NA**

(72)Name of Inventor :  
**1)Dr. GOPINATHAN. V. T**  
 Address of Applicant :ASSOCIATE PROFESSOR& HEAD/AERO, HINDUSTHAN COLLEGE OF ENGINEERING AND TECHNOLOGY, VALLEY CAMPUS, POLLACHI HIGHWAY, COIMBATORE, TAMIL NADU, INDIA - 641032. -----  
**2)Mr. ARUN RAJA. K. K**  
 Address of Applicant :ASSISTANT PROFESSOR/AERO, HINDUSTHAN COLLEGE OF ENGINEERING AND TECHNOLOGY, VALLEY CAMPUS, POLLACHI HIGHWAY, COIMBATORE, TAMIL NADU, INDIA - 641032. ----  
**3)Mr. V. SARAVANAKUMAR**  
 Address of Applicant :ASSISTANT PROFESSOR/AERO, HINDUSTHAN COLLEGE OF ENGINEERING AND TECHNOLOGY, VALLEY CAMPUS, POLLACHI HIGHWAY, COIMBATORE, TAMIL NADU, INDIA - 641032. ----  
**4)Mr. MAGESH KUMAR M**  
 Address of Applicant :ASSISTANT PROFESSOR/AERO, HINDUSTHAN COLLEGE OF ENGINEERING AND TECHNOLOGY, VALLEY CAMPUS, POLLACHI HIGHWAY, COIMBATORE, TAMIL NADU, INDIA - 641032. ----  
**5)SHARUSRI K**  
 Address of Applicant :HINDUSTHAN COLLEGE OF ENGINEERING AND TECHNOLOGY, VALLEY CAMPUS, POLLACHI HIGHWAY, COIMBATORE, TAMIL NADU, INDIA - 641032. -----  
**6)SRISHARADEVI K**  
 Address of Applicant :HINDUSTHAN COLLEGE OF ENGINEERING AND TECHNOLOGY, VALLEY CAMPUS, POLLACHI HIGHWAY, COIMBATORE, TAMIL NADU, INDIA - 641032. -----  
**7)VENKATESH K**  
 Address of Applicant :HINDUSTHAN COLLEGE OF ENGINEERING AND TECHNOLOGY, VALLEY CAMPUS, POLLACHI HIGHWAY, COIMBATORE, TAMIL NADU, INDIA - 641032. -----  
**8)VISALATCHI M**  
 Address of Applicant :HINDUSTHAN COLLEGE OF ENGINEERING AND TECHNOLOGY, VALLEY CAMPUS, POLLACHI HIGHWAY, COIMBATORE, TAMIL NADU, INDIA - 641032. -----

(57) Abstract :  
 Drones (especially those with drone tethers and infrared cameras) can be extremely beneficial for firefighters. Thermal imaging from the aerial perspective allows Incident Command to see through smoke to direct streams to hot spots or direct "and monitor Rescue Companies during entry. We specialize in cost-effective thermal drone solutions for fire-departments all over the country. Our thermal experts have been developing solutions for these professionals for over half a decade. ' Fire departments are seeing large benefits from the use of drones during structure fires and search and rescue missions. In the case of a structure fire, when first arriving on the scene, the drone can be deployed to assess the scene, before the firefighters are put in harm way. When equipped with a thermal camera, the drone can show operators where the hotspots are, and also have the ability "to see through smoke and in low light conditions. The thermal camera can then allow operators to monitor crew members and conditions, improving efficiency and safety. The drone can also.be equipped with a spotlight to assist firefighters in dark or low light conditions.

No. of Pages : 5 No. of Claims : 4

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202241028222 A

(19) INDIA

(22) Date of filing of Application :17/05/2022

(43) Publication Date : 27/05/2022

(54) Title of the invention : POST-BUCKLING BEHAVIOR OF STIFFENED CURVED PANEL USING ARC LENGTH METHOD

(51) International classification :G06F0030230000, G06F0030130000, F16F0007120000, G06F0030000000, G06F0111100000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

(71)Name of Applicant :  
**1) HINDUSTHAN COLLEGE OF ENGINEERING AND TECHNOLOGY**  
 Address of Applicant : HINDUSTHAN COLLEGE OF ENGINEERING AND TECHNOLOGY, VALLEY CAMPUS, POLLACHI HIGHWAY, COIMBATORE, TAMIL NADU, INDIA - 641032. -----  
**Name of Applicant : NA**  
**Address of Applicant : NA**

(72)Name of Inventor :  
**1) Dr. GOPINATHAN. V. T**  
 Address of Applicant :ASSOCIATE PROFESSOR& HEAD/AERO, HINDUSTHAN COLLEGE OF ENGINEERING AND TECHNOLOGY, VALLEY CAMPUS, POLLACHI HIGHWAY, COIMBATORE, TAMIL NADU, INDIA - 641032. -----  
**2)Mr. ARUN RAJA. K. K**  
 Address of Applicant : ASSISTANT PROFESSOR/AERO, HINDUSTHAN COLLEGE OF ENGINEERING AND TECHNOLOGY, VALLEY CAMPUS, POLLACHI HIGHWAY, COIMBATORE, TAMIL NADU, INDIA - 641032. -----  
**3)Mr. V. SARAVANAKUMAR**  
 Address of Applicant :ASSISTANT PROFESSOR/AERO, HINDUSTHAN COLLEGE OF ENGINEERING AND TECHNOLOGY, VALLEY CAMPUS, POLLACHI HIGHWAY, COIMBATORE, TAMIL NADU, INDIA - 641032. -----  
**4)Dr. GANESH M**  
 Address of Applicant :ASSOCIATE PROFESSOR& HEAD/AERO, HINDUSTHAN COLLEGE OF ENGINEERING AND TECHNOLOGY, VALLEY CAMPUS, POLLACHI HIGHWAY, COIMBATORE, TAMIL NADU, INDIA - 641032. -----  
**5)KARTHICK V**  
 Address of Applicant :HINDUSTHAN COLLEGE OF ENGINEERING AND TECHNOLOGY, VALLEY CAMPUS, POLLACHI HIGHWAY, COIMBATORE, TAMIL NADU, INDIA - 641032. -----  
**6)KRISHNA KUMAR M S**  
 Address of Applicant :HINDUSTHAN COLLEGE OF ENGINEERING AND TECHNOLOGY, VALLEY CAMPUS, POLLACHI HIGHWAY, COIMBATORE, TAMIL NADU, INDIA - 641032. -----  
**7)MAHALAKSHMI A**  
 Address of Applicant :HINDUSTHAN COLLEGE OF ENGINEERING AND TECHNOLOGY, VALLEY CAMPUS, POLLACHI HIGHWAY, COIMBATORE, TAMIL NADU, INDIA - 641032. -----  
**8)NAGA PANDIYAN R**  
 Address of Applicant :HINDUSTHAN COLLEGE OF ENGINEERING AND TECHNOLOGY, VALLEY CAMPUS, POLLACHI HIGHWAY, COIMBATORE, TAMIL NADU, INDIA - 641032. -----

(57) Abstract :  
 In this project work, numerical investigations were carried out for the stiffened curved panel using ABAQUS 6.14. Stiffened curved panels with various panel radius and stiffener types such as HAT Shape , I shape & J shape are considered under uniaxial compression load. The present study is focused on the investigation of the buckling load and ultimate load for the stiffened curved panel. In simple cases linear eigenvalue analysis (Eigenvalue Buckling Prediction) may be sufficient for design evaluation; but if there is concern about material nonlinearity, geometric nonlinearity prior to buckling, or unstable postbuckling response, a load- deflection (Riks) analysis must be performed to investigate the problem further. The Riks method uses the load magnitude as an additional unknown; it solves simultaneously for loads and displacements. Therefore, another quantity must be used to measure the progress of the solution; Abaqus/Standard uses the "arc length," / , along the static equilibrium path in load-displacement space. This approach provides solutions regardless of whether the response is stable or unstable. The Riks method: is generally used to predict unstable, geometrically nonlinear collapse of a structure; can include nonlinear materials and boundary conditions; often follows an eigenvalue buckling analysis to provide complete information about a structure's collapse. The failure load of the stiffened curved panel after buckling was predicted by using STATIC Riks (arc length) method. Initial geometrical imperfections and nonlinearities of the materials were considered, for better results.-When the panel radius is increased with constant-plate thickness,- the buckling load and ultimate load decreases constantly. Among the stiffeners considered HAT SHAPE stiffener gives Good results and withstand more Buckling load and Ultimate load comparing the other stiffeners. Keywords: Buckling, Post buckling, Stiffened curved panel, hat shaped stiffener, j shaped stiffener, J shape stiffener, ABAQUS, Arc length Method, "Noh linear analysis.

No. of Pages : 5 No. of Claims : 4

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202241028220 A

(19) INDIA

(22) Date of filing of Application :17/05/2022

(43) Publication Date : 27/05/2022

(54) Title of the invention : AERODYNAMIC ANALYSIS OF WING AND WINGLET USING CFD

(51) International classification :B64C0023060000, B64C0005080000, B64C0003140000, B63B0001240000, B64C0003100000  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

(71)Name of Applicant :

**1)HINDUSTHAN COLLEGE OF ENGINEERING AND TECHNOLOGY**

Address of Applicant : HINDUSTHAN COLLEGE OF ENGINEERING AND TECHNOLOGY, VALLEY CAMPUS, POLLACHI HIGHWAY, COIMBATORE, TAMIL NADU, INDIA - 641032. -----

Name of Applicant : NA

Address of Applicant : NA

(72)Name of Inventor :

**1) Dr. GOPINATHAN. V. T**

Address of Applicant :ASSOCIATE PROFESSOR& HEAD/AERO, HINDUSTHAN COLLEGE OF ENGINEERING AND TECHNOLOGY, VALLEY CAMPUS, POLLACHI HIGHWAY, COIMBATORE, TAMIL NADU, INDIA - 641032. -----

**2)Mr. ARUN RAJA. K. K**

Address of Applicant :ASSISTANT PROFESSOR/AERO, HINDUSTHAN COLLEGE OF ENGINEERING AND TECHNOLOGY, VALLEY CAMPUS, POLLACHI HIGHWAY, COIMBATORE, TAMIL NADU, INDIA - 641032. -----

**3)Mr. V. SARAVANAKUMAR**

Address of Applicant :ASSISTANT PROFESSOR/AERO, HINDUSTHAN COLLEGE OF ENGINEERING AND TECHNOLOGY, VALLEY CAMPUS, POLLACHI HIGHWAY, COIMBATORE, TAMIL NADU, INDIA - 641032. -----

**4)Dr. GANESH M**

Address of Applicant :ASSOCIATE PROFESSOR/AERO, HINDUSTHAN COLLEGE OF ENGINEERING AND TECHNOLOGY, VALLEY CAMPUS, POLLACHI HIGHWAY, COIMBATORE, TAMIL NADU, INDIA - 641032. -----

**5)CHANDRALEKA G K**

Address of Applicant :HINDUSTHAN COLLEGE OF ENGINEERING AND TECHNOLOGY, VALLEY CAMPUS, POLLACHI HIGHWAY, COIMBATORE, TAMIL NADU, INDIA - 641032. -----

**6)DHARSHINI DEVI T R**

Address of Applicant :HINDUSTHAN COLLEGE OF ENGINEERING AND TECHNOLOGY, VALLEY CAMPUS, POLLACHI HIGHWAY, COIMBATORE, TAMIL NADU, INDIA - 641032. -----

**7)LAVANYA R**

Address of Applicant :HINDUSTHAN COLLEGE OF ENGINEERING AND TECHNOLOGY, VALLEY CAMPUS, POLLACHI HIGHWAY, COIMBATORE, TAMIL NADU, INDIA - 641032. -----

**8)PREETHI R**

Address of Applicant :HINDUSTHAN COLLEGE OF ENGINEERING AND TECHNOLOGY, VALLEY CAMPUS, POLLACHI HIGHWAY, COIMBATORE, TAMIL NADU, INDIA - 641032. -----

(57) Abstract :

In the aeronautical field reducing drag is a major challenge, in this regard for reducing induced drag we used a spiroid winglet. If lift to drag ratio increases the drag will reduce here in this spiroid winglet. One way of reducing lift-induced drag is by using winglet devices by applying biomimetic abstraction of the principle behind a bird's wingtip feathers, we study spiroid winglet which look like an extended blunted winglet that bends upward by 360 degree to form a large rigid ribbon. Therefore to increase the lift and reduces the induced drag at cruise condition and to save the airline fuel, the wing with spiroid winglets are used.

No. of Pages : 6 No. of Claims : 1

(54) Title of the invention : EFFECTS OF HYGROTHERMAL AGEING ON MECHANICAL PROPERTIES OF NFRC

(51) International classification :G01N0003080000, G01N0003000000, G01N0033440000, G01N0017000000, C08L0023020000

(86) International Application No :NA  
 Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
 Filing Date :NA

(62) Divisional to Application Number :NA  
 Filing Date :NA

(71)Name of Applicant :  
**1)HINDUSTHAN COLLEGE OF ENGINEERING AND TECHNOLOGY**  
 Address of Applicant : HINDUSTHAN COLLEGE OF ENGINEERING AND TECHNOLOGY, VALLEY CAMPUS, POLLACHI HIGHWAY, COIMBATORE, TAMIL NADU, INDIA - 641032. -----

**Name of Applicant : NA**  
**Address of Applicant : NA**

(72)Name of Inventor :  
**1)Dr. GOPINATHAN. V. T**  
 Address of Applicant :PROFESSOR & HEAD /AERO, HINDUSTHAN COLLEGE OF ENGINEERING AND TECHNOLOGY, VALLEY CAMPUS, POLLACHI HIGHWAY, COIMBATORE, TAMIL NADU, INDIA - 641032. ----

**2)Mr. ARUN RAJA. K. K**  
 Address of Applicant :ASSISTANT PROFESSOR/ AERO, HINDUSTHAN COLLEGE OF ENGINEERING AND TECHNOLOGY, VALLEY CAMPUS, POLLACHI HIGHWAY, COIMBATORE, TAMIL NADU, INDIA - 641032. ----

**3)Mr. V. SARAVANAKUMAR.V**  
 Address of Applicant :ASSISTANT PROFESSOR/ AERO, HINDUSTHAN COLLEGE OF ENGINEERING AND TECHNOLOGY, VALLEY CAMPUS, POLLACHI HIGHWAY, COIMBATORE, TAMIL NADU, INDIA - 641032. ----

**4)Mr. TAMILVENDAN D**  
 Address of Applicant :ASSISTANT PROFESSOR/ AERO, HINDUSTHAN COLLEGE OF ENGINEERING AND TECHNOLOGY, VALLEY CAMPUS, POLLACHI HIGHWAY, COIMBATORE, TAMIL NADU, INDIA - 641032. ----

**5)GURU PRASHANT M**  
 Address of Applicant :HINDUSTHAN COLLEGE OF ENGINEERING AND TECHNOLOGY, VALLEY CAMPUS, POLLACHI HIGHWAY, COIMBATORE, TAMIL NADU, INDIA - 641032. -----

**6)K ANAGHA UDAYAKUMAR**  
 Address of Applicant :HINDUSTHAN COLLEGE OF ENGINEERING AND TECHNOLOGY, VALLEY CAMPUS, POLLACHI HIGHWAY, COIMBATORE, TAMIL NADU, INDIA - 641032. -----

**7)RAJALAKSHMI S**  
 Address of Applicant :HINDUSTHAN COLLEGE OF ENGINEERING AND TECHNOLOGY, VALLEY CAMPUS, POLLACHI HIGHWAY, COIMBATORE, TAMIL NADU, INDIA - 641032. -----

**8)SANTHINI M**  
 Address of Applicant :HINDUSTHAN COLLEGE OF ENGINEERING AND TECHNOLOGY, VALLEY CAMPUS, POLLACHI HIGHWAY, COIMBATORE, TAMIL NADU, INDIA - 641032. -----

(57) Abstract :  
 Fibre reinforced polymers (FRP) have gained prominence in recent years in the construction, automobile and particularly in Aerospace industries. As the world moves closer to sustainable solutions for the future the focus on Natural Fibre Composites has increased due to their biodegradable properties and environmentally friendly nature. Often they have to withstand harsh environmental conditions, especially in marine and offshore environments, moisture or direct water contact leads to water absorption into the composite and subsequent degradation of the composite structure. When water molecules are absorbed in the composite it separates the matrix and resin bonding as the resin is of a hydrophobic nature while the matrix is hydrophilic. As a result, the mechanical properties change during application. The aim of this work is to study the effect of hygrothermal ageing on mechanical properties of Flax Fibre composites. The specimens are manufactured using Compression Moulding Technique. The virgin sample is tested for base figures of Tensile and Flexural strength while another sample is subjected to moisture and heat in a controlled ageing chamber for 7 days. The kinetic of moisture absorption is noted and plotted. To measure absorption the virgin sample is weighed and subsequently at an interval of 24 hrs the sample is weighed for 7 days. Tensile and Flexural properties are measured for the samples and the changes are studied and reasoned for. The Tensile test is carried out using an Universal Testing Machine and Flexural test is performed using the 3 - Point Flexural test. The damage is analyzed using a Scanning Electron Microscope to find reasons for defects and damages. This is studied to understand how exposure to moisture affects-the structure of the composite and recommend solutions to prevent the same.

No. of Pages : 5 No. of Claims : 3



(12) PATENT APPLICATION PUBLICATION

(21) Application No.202241030141 A

(19) INDIA

(22) Date of filing of Application :26/05/2022

(43) Publication Date : 03/06/2022

(54) Title of the invention : DESIGN AND ANALYSIS OF BLADELESS WINDMILL

(51) International classification :F03D0013200000, H02N0002180000, C08K0007060000, F03D0003040000, F03D0009000000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

(71)Name of Applicant :  
**1)Hindusthan College of Engineering and Technology**  
 Address of Applicant :Hindusthan College of Engineering and Technology, Valley Campus, Pollachi Highway, Coimbatore, Tamilnadu, India 641032 -----  
 -----  
**Name of Applicant : NA**  
**Address of Applicant : NA**

(72)Name of Inventor :  
**1)Dr.Gopinathan.V.T**  
 Address of Applicant :Associate Professor& Head /Aero, Hindusthan College of Engineering and Technology, Valley Campus, Pollachi Highway, Coimbatore, Tamilnadu, India 641032 -----  
 -----  
**2)Mr.Arun Raja.K.K**  
 Address of Applicant :Assistant Professor /Aero, Hindusthan College of Engineering and Technology, Valley Campus, Pollachi Highway, Coimbatore, Tamilnadu, India 641032 -----  
 -----  
**3)Mr.V.Saravanakumar**  
 Address of Applicant :Assistant Professor/Aero, Hindusthan College of Engineering and Technology, Valley Campus, Pollachi Highway, Coimbatore, Tamilnadu, India 641032 -----  
 -----  
**4)Mr. MANOJKUMAR K**  
 Address of Applicant :Assistant Professor/ Aero, Hindusthan College of Engineering and Technology, Valley Campus, Pollachi Highway, Coimbatore, Tamilnadu, India 641032 -----  
 -----  
**5)SRI BALAJI S**  
 Address of Applicant :Hindusthan College of Engineering and Technology, Valley Campus, Pollachi Highway, Coimbatore, Tamilnadu, India 641032 -----  
 -----  
**6)SUNDARESWARAN E**  
 Address of Applicant :Hindusthan College of Engineering and Technology, Valley Campus, Pollachi Highway, Coimbatore, Tamilnadu, India 641032 -----  
 -----  
**7)PAVITHRA N**  
 Address of Applicant :Hindusthan College of Engineering and Technology, Valley Campus, Pollachi Highway, Coimbatore, Tamilnadu, India 641032 -----  
 -----  
**8)PRAKAAS M**  
 Address of Applicant :Hindusthan College of Engineering and Technology, Valley Campus, Pollachi Highway, Coimbatore, Tamilnadu, India 641032 -----  
 -----

(57) Abstract :

Our concept gives an exact solution to the issues and problems that the conventional windmill has. The concept of Bladeless Windmill is a safe replacement for ordinary windmill in order to overcome them. The principle behind the Bladeless Windmill is the Vortex shedding effect. With less moving parts, the Bladeless Windmill generates electricity by the piezoelectric material by the oscillations or vibrations caused by wind. The ultimate objective of the research is to design a bladeless windmill using composites material with different properties, different shapes and different designs and to examine the flow characteristic of the operations over the design using ANSYS. With various designs of mast such as Cylindrical, Tapered Cylinder and Hollow Tapered Cylinder with three different materials of E-Glass, Carbon fiber and Cyanate Fiber in various lengths were compared. With the results over the design, the property with more electricity produced is taken into consideration for the model. The main objective of our project is to produce nominal output of electricity with less expenditure and space. It is a simpler way of converting wind kinetic energy into electrical energy without harming any creatures and less moving parts. Our idea doesn't need any huge amount of space as it can be implemented even in house terraces with less maintenance. Size of the model is much smaller when compared to the conventional one and cost effective too.

No. of Pages : 5 No. of Claims : 7

(54) Title of the invention : FABRICATION OF METEOROLOGY TRACKING CUBE SAT

(51) International classification :H04Q0009000000, G06Q0030020000, A61B0006120000, G06Q0050120000, G06T0007000000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

(71)Name of Applicant :  
**1)Hindusthan College of Engineering and Technology**  
 Address of Applicant :Hindusthan College of Engineering and Technology, Valley Campus, Pollachi Highway, Coimbatore, Tamilnadu, India 641032 -----

**Name of Applicant : NA**  
**Address of Applicant : NA**

(72)Name of Inventor :  
**1)Dr.Gopinathan.V.T**  
 Address of Applicant :Associate Professor& Head /Aero, Hindusthan College of Engineering and Technology, Valley Campus, Pollachi Highway, Coimbatore, Tamilnadu, India 641032 -----

**2)Mr.Arun Raja.K.K**  
 Address of Applicant :Assistant Professor/Aero, Hindusthan College of Engineering and Technology, Valley Campus, Pollachi Highway, Coimbatore, Tamilnadu, India 641032 -----

--  
**3)Mr.V.Saravanakumar**  
 Address of Applicant :Assistant Professor/Aero, Hindusthan College of Engineering and Technology, Valley Campus, Pollachi Highway, Coimbatore, Tamilnadu, India 641032 -----

--  
**4)Dr. KARTHIKEYAN P N**  
 Address of Applicant :Professor/ Aero, Hindusthan College of Engineering and Technology, Valley Campus, Pollachi Highway, Coimbatore, Tamilnadu, India 641032 -----

**5)DEVIKA JAYARAJ**  
 Address of Applicant :Hindusthan College of Engineering and Technology, Valley Campus, Pollachi Highway, Coimbatore, Tamilnadu, India 641032 -----

**6)SHAHANAS P N**  
 Address of Applicant :Hindusthan College of Engineering and Technology, Valley Campus, Pollachi Highway, Coimbatore, Tamilnadu, India 641032 -----

**7)SHYAM MOHAN K**  
 Address of Applicant :Hindusthan College of Engineering and Technology, Valley Campus, Pollachi Highway, Coimbatore, Tamilnadu, India 641032 -----

**8)SUVITHA S**  
 Address of Applicant :Hindusthan College of Engineering and Technology, Valley Campus, Pollachi Highway, Coimbatore, Tamilnadu, India 641032 -----

(57) Abstract :  
 Weather is the state of atmosphere at a particular time and place with regard to temperature, moisture, air pressure, precipitation etc. The interest is to design an autonomous Nano Satellite which can provide the information of weather anywhere and anytime. It is possible to provide instant weather report which can be used to compare the data of a place with some different altitude as well as for different time instant. With the advancement of technology, specially Micro Electrical Mechanical Systems & data acquisition systems, the problem of-large set up area and cost has been reduced significantly. Nano satellite can be set up at home as well as in atmosphere or in space which can provide accurate weather report.

No. of Pages : 5 No. of Claims : 5

(54) Title of the invention : NUMERICAL SIMULATION OF THRUST AUGMENTATION IN C-D NOZZLE

(51) International classification :C08G0077200000, C08G0077120000, C08L0083040000, G06F0113240000, G06F0030200000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

(71)Name of Applicant :  
**1)Hindusthan College of Engineering and Technology**  
 Address of Applicant :Hindusthan College of Engineering and Technology, Valley Campus, Pollachi Highway, Coimbatore, Tamilnadu, India 641032. -----

**Name of Applicant : NA**  
**Address of Applicant : NA**

(72)Name of Inventor :  
**1)Dr.Gopinathan.V.T**  
 Address of Applicant :Associate Professor & Head /Aero, Hindusthan College of Engineering and Technology, Valley Campus, Pollachi Highway, Coimbatore, Tamilnadu, India 641032. -----

**2)Mr.Arun Raja.K.K**  
 Address of Applicant :Assistant Professor /Aero, Hindusthan College of Engineering and Technology, Valley Campus, Pollachi Highway, Coimbatore, Tamilnadu, India 641032. -----

**3)Mr.V.Saravanakumar**  
 Address of Applicant :Assistant Professor /Aero, Hindusthan College of Engineering and Technology, Valley Campus, Pollachi Highway, Coimbatore, Tamilnadu, India 641032. -----

**4)Mr. Manojkumar K**  
 Address of Applicant :Assistant Professor /Aero, Hindusthan College of Engineering and Technology, Valley Campus, Pollachi Highway, Coimbatore, Tamilnadu, India 641032. -----

**5)Sahim Nishban S**  
 Address of Applicant :Hindusthan College of Engineering and Technology, Valley Campus, Pollachi Highway, Coimbatore, Tamilnadu, India 641032. -----

**6)Sitheswaran S**  
 Address of Applicant :Hindusthan College of Engineering and Technology, Valley Campus, Pollachi Highway, Coimbatore, Tamilnadu, India 641032. -----

**7)Yuvaraj R**  
 Address of Applicant :Hindusthan College of Engineering and Technology, Valley Campus, Pollachi Highway, Coimbatore, Tamilnadu, India 641032. -----

(57) Abstract :  
 ANNEXURE 3 In C-D Nozzle subsonic flow in convergent section and supersonic flow in divergent section takes place.The flow comes from subsonic flow to supersonic flow. In supersonic flow we increase total mass flow rate of nozzle by the density based solvent for residual convergence with constant hybrid lapse equation. A jet-propulsion engine may be increased temporarily over its normal value by some secondary means (as the burning of additional fuel in the tail pipe, or the injection of water into the engine inlet and the combustion chambers) which increases the mass flow, the velocity, or both. By the way the Nozzle was designed by CAD Software CATIA and then the model was analysed by using ANSYS2021R1 version. In this project we have taken three models i.e, three different angles of injector (30o,45°,60°), The expected output is . increase in temperature and pressure by passing Hydrogen Fluoride through the Fuel injector by the different angles. It contains an Ansys workbench module (version 2021 R1) which includes geometry, mesh, fluent case, and data for case studies, namely, with and without injection for the three different injection angles.

No. of Pages : 5 No. of Claims : 3