

# Autodesk® Inventor 2011 Digital Prototyping Challenge

## Nano –Film Coating Robot

S.Thileepan,(RoboCrat)

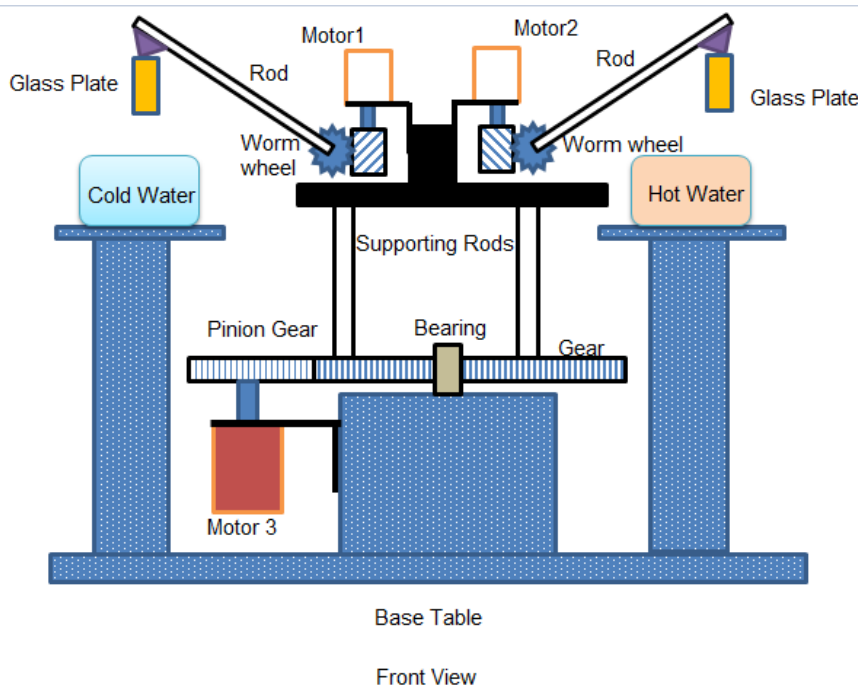
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Nano –Film Coating Robot is designed using Vex Robotics micro controller for its continuous task of coating thin nano film on the glass plate by dip coating method.



**Concept:** The glass plates are to be dipped in the hot and cold solutions alternatively for 100 times to form a nano thin film deposits on the glass plate.

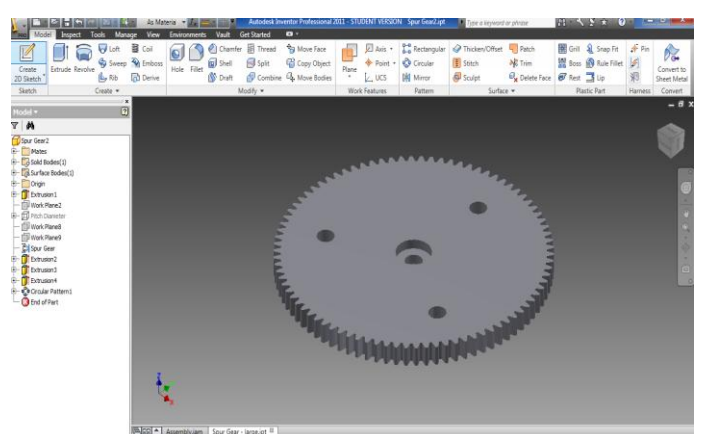
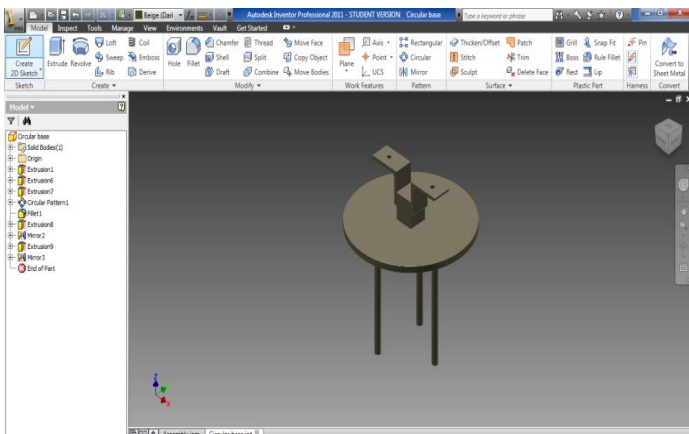
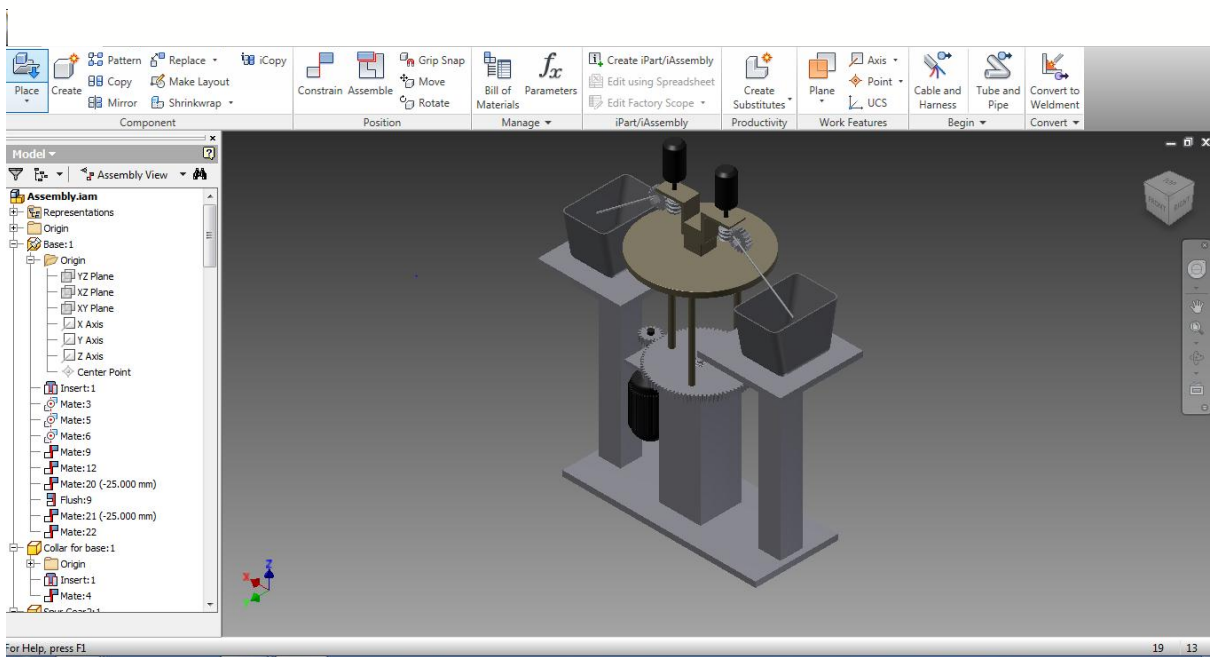
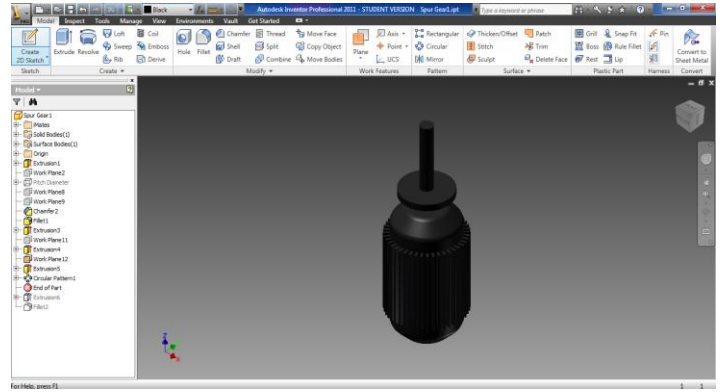
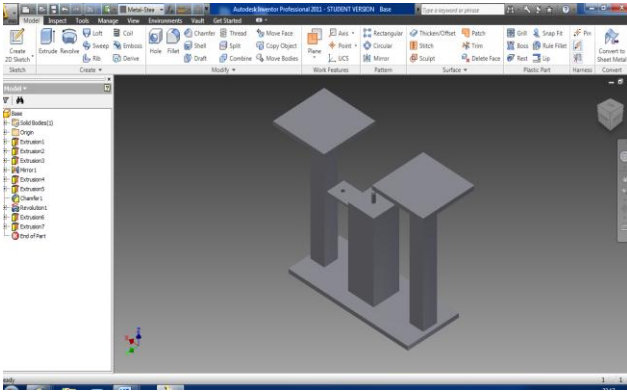
**Working:** The vex robotics PIC microcontroller controls and coordinates the working of the Nano-Film coating Robot.  
Step 1: The two plates to be coated with nano film are simultaneously dipped in the solutions and then lifted up by the worm gear mechanism powered by the motors.  
Step 2: Then the rotating base table containing the lifting arrangement is rotated to 180 degree by the motor attached with spur gear which is driven by a pinion gear of a motor.

The step 1 and step 2 is repeated for 200 times automatically with the help of vex PIC microcontroller ...

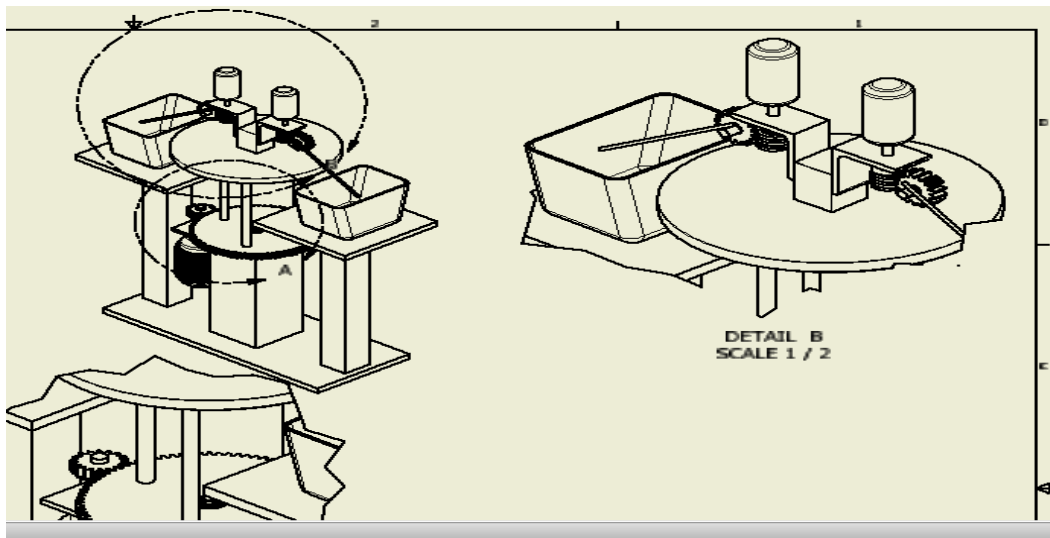
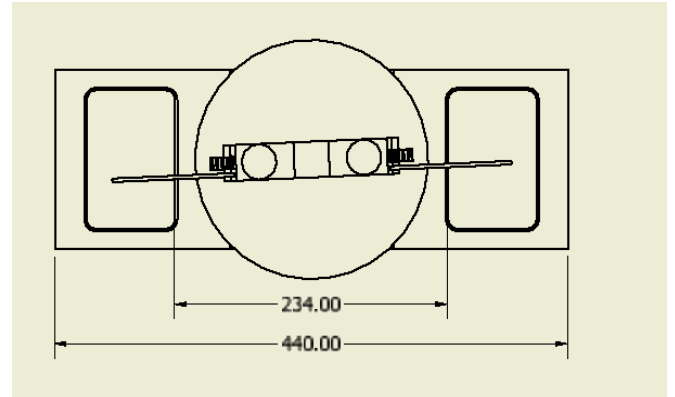
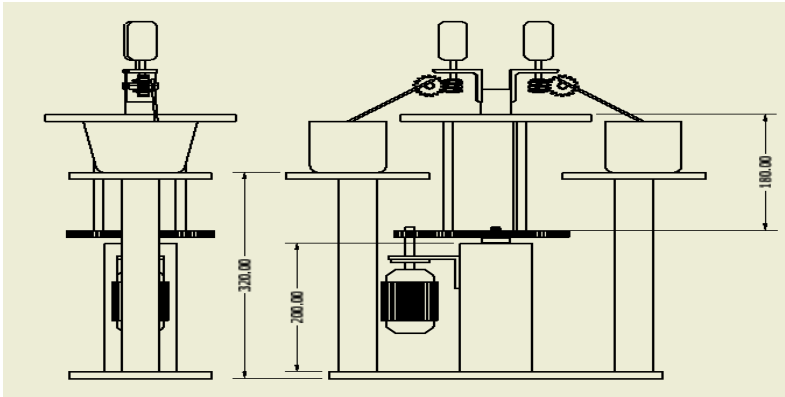
**Autodesk Inventor:** Autodesk Inventor 2011 is the best CAD modeling software. It has modules for part modeling, assembly, drawing, dynamic simulation. The best feature is the power transmission tab containing gear libraries with automatic calculation generator and assembling the parts is very easy. I thank Autodesk Inventor for giving life to the design.

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## Nano –Film Coating Robot

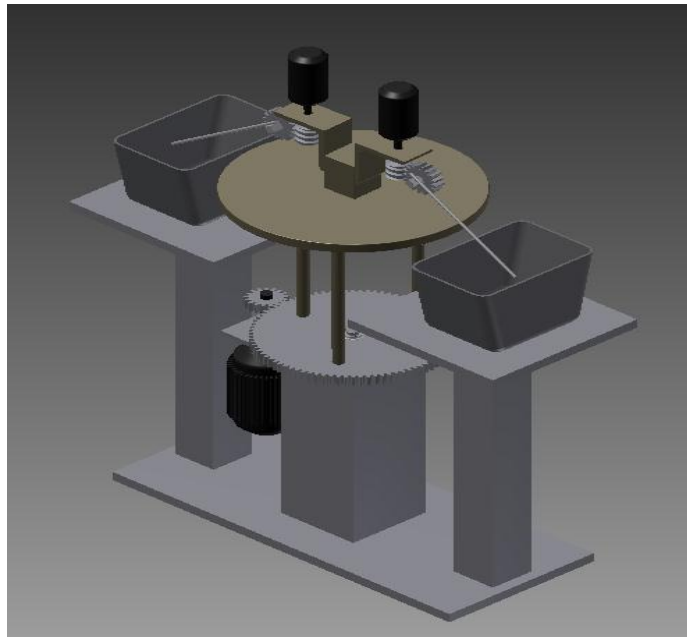


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PARTS LIST		
ITEM	QTY	PART NUMBER
1	1	Base
2	1	Collar for base
3	1	Spur Gear - large
4	1	Circular base
5	1	Bearing
6	3	Spur Gear1
7	1	motor
8	2	motor - small
9	2	Glass Beaker
10	2	Worm1
11	2	rod
12	2	rod long

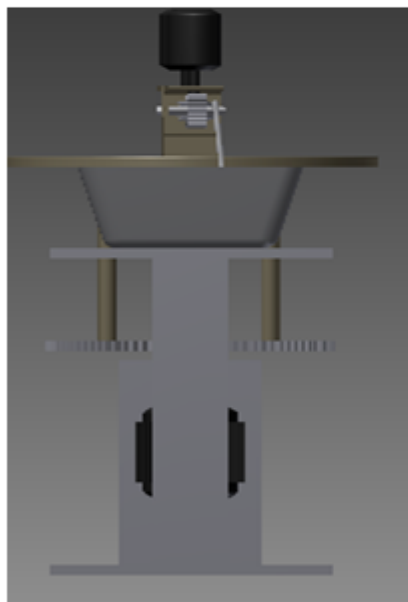
# Autodesk® Inventor 2011 Digital Prototyping Challenge Nano –Film Coating Robot



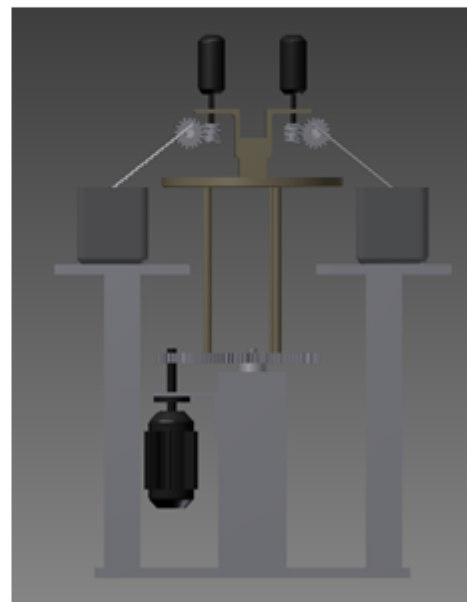
Isometric View



Top View

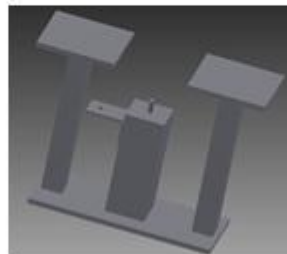
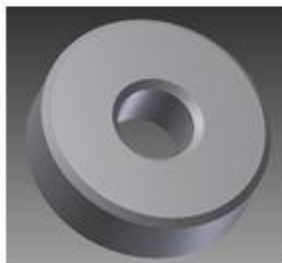
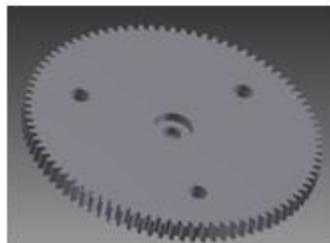
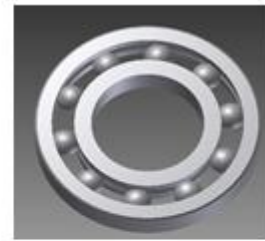
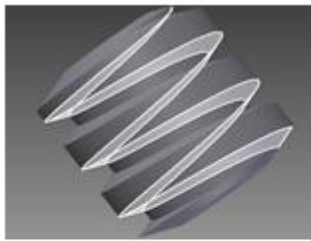


Left View



Front View

**Autodesk® Inventor 2011**  
**Digital Prototyping Challenge**  
Nano –Film Coating Robot  
(Various parts of the Robot)

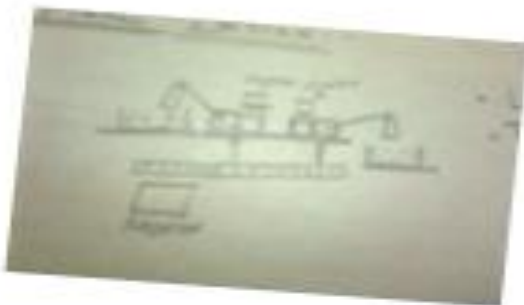


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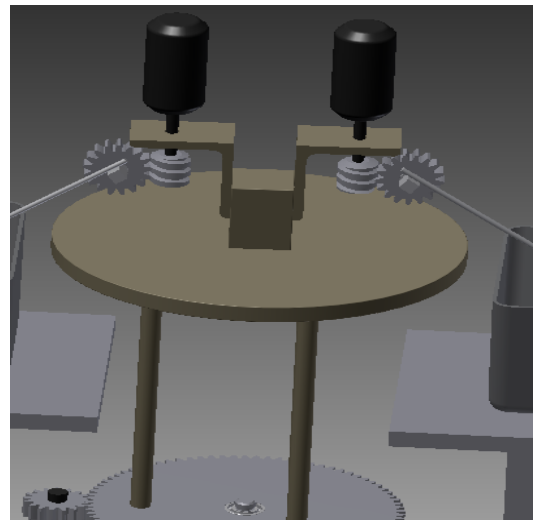
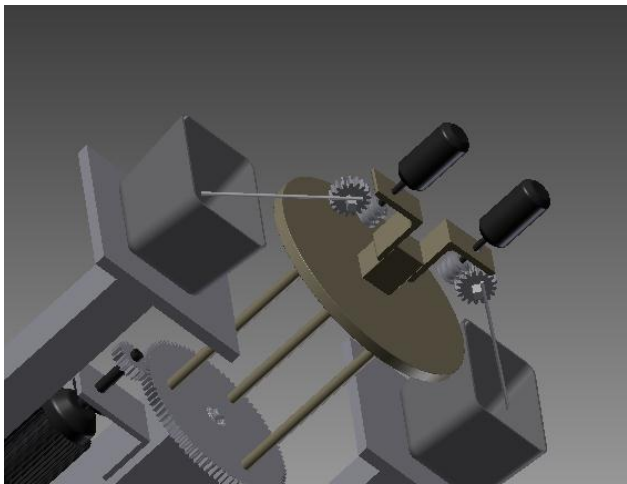
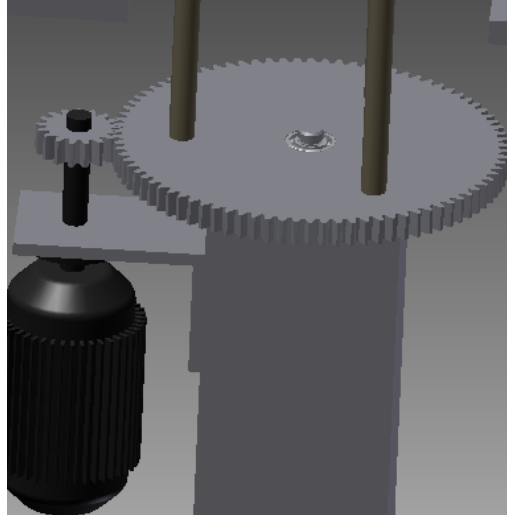
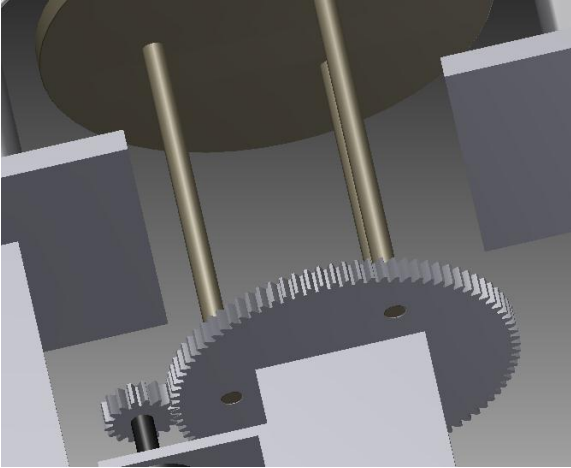
## Digital Prototyping Challenge

### Brain Storming

#### Nano-Film Coating Robot



# Autodesk® Inventor 2011 Digital Prototyping Challenge (Various Views)





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Digital Prototyping Challenge**

**Nano –Film Coating Robot**

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