Production plan - Final Year projects 2022

Title: Development of a 6 DOF Stewart Platform Force Balance for a Low Speed Wind Tunnel

Week	Tasks/Activities	Materials Required	Special Equipment	Simulteneous/Concurrent activities	Status/remarks
1	1. Order of PCBs from China and HX711s locally. 2. Project presentation.	NONE	NONE	Assembly of Stewart platform.	☑
	2. Project presentation	NONE	NONE		☑
2	1. Program the Human Machine Interface	NONE	NONE	Design of streamline smoke visualizer	☑
	2. Location of drilling points on the wind tunnel for three pitot tubes (i) Determining hole positions in the intake and diffuser sections. (ii) Determining distance between holes in intake and diffuser sections (iii) Determing hole dimension based on pitot tube diameter	NONE	NONE		☑
3	1. Test and calibrate the three pitot tubes. (i) Obtain readings from each pitot tube separately. (ii) Test all three pitot tubes in the same conditions and ensure we get similar results	NONE	NONE	Verify and 3D print streamline smoke emitter	☑
	2. Control Stewart platform using HMI (i) Achieve different Stewart platform movements based on HMI commands	NONE	NONE		☑

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4	1. Drill holes on the wind tunnel for mountin the pitot tubes. (i) Drill dia 7mm holes in the intake and diffuser sections of the wind tunnel	Rubber	1. Hand drill. Specific drill bit diameter i.e. 7mm	Circuit Assembly.	☑
5	1. Assembly of smoke visualizer in the Wind Tunnel (i) Design assembly setup of the smoke visualizer in the wind tunnel (ii) Pipe threading to support smoke visualizer in wind tunnel (iii) Drill hole on the wind tunnel to allow introduction of smoke into the wind tunnel	3/4" metal pipe (galvanized/black). 400mm length	Pipe wrench Hand drill Drill bit (diameter 20mm)	Attach strain gauges on one Stewarat platform leg as a demo	☑
6	Attach strain gauges on Stewart platform legs.		NONE		☑
7	1. Full assembly. (i) Control Stewart platform using HMI (ii) Obtain force and pressure readings.	NONE	NONE	Sample model testing	☑
	2. Assembly of smoke visualizer and pitot tubes in the wind tunnels (i) Install smoke visualizer in the wind tunnel and connect to the fog generator			Sample model testing	☑
8	Iterative testing."1. Obtain pressure readings (i) Display pressure readings on HMI	NONE	NONE	Calibrate platform	☑

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	2. Force sensor testing (i) Obtain forces and moments form the Stewart platform force balance (ii) Display force measurements on HMI	Adherant			☑
9	Iterative testing.	NONE	NONE		☑
10	Iterative testing.	NONE	NONE		☑
11	Iterative testing.	NONE	NONE		☑
12	Iterative testing.	NONE	NONE		☑
13	Iterative testing.	NONE	NONE		☑
14	Iterative testing.	NONE	NONE		☑