Materials List for:

Operation of the Collaborative Composite Manufacturing (CCM) System

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Materials

Name	Company	Catalog Number	Comments
AeroBasic	Aerotech		Motion control software
Collaborative Composite Manufacturing (CCM) System	Concordia University		A CCM system is proposed to manufacture more complex composite components which pose high demand for trajectory planning than those by the current AFP system. The system consists of a 6 degree-of-freedom (DOF) serial robot holding the fiber placement head, a 6-DOF revolute-spherical-spherical (RSS) parallel robot on which a 1-DOF mandrel holder is installed and an eye-to-hand optical CMM sensor, i.e. C-track, to detect the poses of both end-effectors of parallel robot and serial robot.
C-track	Creaform Inc.		An eye-to-hand optical CMM sensor
Fanuc M-20iA	Fanuc Inc.		Serial robot
Matlab	MathWorks		A multi-paradigm numerical computing software
Quanser	Quanser Inc.		Providing the engineering lab equipments for teaching and research.
VB	Microsoft		Visual Basic
Vxelements	Creaform Inc.		Software for C-track