	PROGRESS	PEOPLE INVOLVED	WEEK 5	WEEK 6	WEEK 7	WEEK 8	WEEK 9
1.0 RobotStudio (/4)							
1.1 Define and display in Robotstudio with correct orientation:	COMPLETED	Will					
1.1.1 0.25 ● World frame	COMPLETED	Will					
1.1.2 0.25 ● Base frame	COMPLETED	Will					
1.1.3 0.25 ● End effector frame	COMPLETED	Will					
1.1.4 0.25 ● Table camera frame	COMPLETED	Will					
1.1.5 0.25 ● Conveyor camera frame	COMPLETED	Will					
1.1.6 0.25 ● Table home frame	COMPLETED	Will					
1.1.7 0.25 ● Conveyor home frame	COMPLETED	Will					
1.2 1.5 Display a recognisable CAD model of the Robot Cell and surrounding area. Include robot, walls, safety	COMPLETED	Emma					
switches, light curtain, conveyor, tables, computer, flex pendant, conveyor panel.	COMPLETED	Emma					
1.3 0.25 CAD model is coloured.	COMPLETED	Emma					
1.4 0.5 Move robot in simulation through the Matlab GUI when not connected to the real Robot System.	COMPLETED	Everyone					
2.0 GUI:Startup and shutdown (/2.5)							
2.1 0.5 At the start of the program. Display all the safety information contained in the SWP and prompt the user	COMPLETED	Emma					
for confirmation. Guide the user through the steps to operate the robot.	COMPLETED	Emma					
2.2 Provide a method to shutdown the robot:	COMPLETED	Emma, Leon					
2.2.1 0.5 ● Programmatically move the robot to home position	COMPLETED	Emma, Leon					
2.2.2 1 ● Avoid collision with the table.	COMPLETED	Will					
2.2.3 0.5 ● Programmatically set all Digital Outputs (DOs) to 0	COMPLETED	Emma, Leon					
3.0 GUI:Robot status (/3)							
3.1 0.5 Give a live update on the status of the robot.	COMPLETED	Leon					
3.2 0.5 Display the current robot joint angles.	COMPLETED	Emma, Anna, Leon, Will					
3.3 0.5 Display the current end effector position.	COMPLETED	Emma, Anna, Leon, Will					
3.4 0.5 Display the current end effector orientation.	COMPLETED	Emma, Anna, Leon, Will					
3.5 0.5 Display a list of messages sent to the robot system in a human readable format.	COMPLETED	Emma, Anna					
3.6 0.5 Display a list of messages received from the robot system in a human readable format.	COMPLETED	Emma, Anna					
4.0 Safety system (/4)							
Provide diagnostics on the GUI for all the conditions that prevent the robot from operating. The	COMPLETED						
diagnostics need to be displayed until the problem have been resolved. Prevent move commands from	COMPLETED						
being sent to the robot until the problem has been resolved.	COMPLETED						
4.1 0.5 ● Emergency stop	COMPLETED	Jialin, Leon, Anna					
4.2 0.5 ● Light curtain	COMPLETED	Jialin, Leon, Anna					
4.3 0.5 ● Motors are off	COMPLETED	Jialin, Leon, Anna					
4.4 0.5 ● Hold to enable not pressed	COMPLETED	Jialin, Leon, Anna					
4,5 0.5 ● Motion task not running/ Execution Error	COMPLETED	Jialin, Leon, Anna					
4.6 0.5 ● Motion supervision triggered (Alternatively prevent the robot from being able to collide with the	COMPLETED	Jialin, Leon, Anna					
table).	COMPLETED	Jialin, Leon, Anna					
4.7 0.5 ● Conveyor is not enabled when trying to use the conveyor.	COMPLETED	Jialin, Leon, Anna					
4.8 0.5 Set ConRun to 0 if ConStat is set to 0 and gracefully handle restarting of the conveyor.	COMPLETED	Jialin, Leon, Anna					
5.0 DIO (/2.5)							
Display the status of Digital Input/Output (DIO) and enable control of DIO from GUI through RAPID	COMPLETED	Emma, Anna, Leon					
5.1 0.5 ● Control vacuum pump	COMPLETED	Emma, Anna, Leon					
5.2 0.5 ● Control vacuum solenoid	COMPLETED	Emma, Anna, Leon					
5.3 0.5 ● Conveyor run	COMPLETED	Emma, Anna, Leon					
5.4 0.5 ● Conveyor direction	COMPLETED	Emma, Anna, Leon					
5.5 0.5 ● Conveyor enabled	COMPLETED	Emma, Anna, Leon					

6.0 GUI:Video feeds (/6)							
6.1 0.5 Display a live video feed from the conveyor camera (min refresh rate: 1Hz).	COMPLETED	Jialin					
6.1.1 1 ● Outline the edge of any boxes.	COMPLETED	Jialin					
6.1.2 1 ● Visually indicate the orientation of any boxes.	COMPLETED	Jialin					
6.2 0.5 Display a live video feed from the table camera (min refresh rate: 1Hz).	COMPLETED	Jialin					
6.2.1 1 ● Outline the edge of all visible blocks on the table video feed.	COMPLETED	Jialin					
6.2.2 0.5 ● Visually indicate the orientation of all visible blocks on the table video feed.	COMPLETED	Jialin					
6.2.3 1 ● Indicate which letter is visible on the block.	COMPLETED	Jialin					
6.2.4 0.5 ● Indicate if any block is unreachable	COMPLETED	Jialin					
7.0 GUI:Pose (/6.5)							
Able to move the robot to a pose using matlab. Need to be accurate to within 5 mm for full marks.	COMPLETED	Calandra,					
7.1 1 ● Move the end effector to a specified position relative to table home.	COMPLETED	Calandra,					
7.2 1 ● Move the end effector to a specified position relative to conveyor home.	COMPLETED	Calandra,					
7.3 1 ● Move to a specified pose (set of joint angles).	COMPLETED	Calandra,					
7.4 1 ● Reorient the end effector without changing the position of the tip.	COMPLETED	Calandra,					
7.5 1 ● Click on a position on the table video feed and move the end effector to that position (pointing	COMPLETED	Calandra, Anna					
down).	COMPLETED	Calandra, Anna					
7.6 1 ● Click on a position on the conveyor video feed and move the end effector to that position	COMPLETED	Calandra, Anna					
(pointing down).	COMPLETED	Calandra, Anna					
7.7 0.5 ● Able to move at different speeds.	COMPLETED	Calandra					
8.0 GUI:Jogging (/4.5)							
Able to move the robot continuously using matlab with continuous human input. Eg: using mouse,	COMPLETED	WILL					
keyboard or xbox controller. Motion need to be smooth for full marks.	COMPLETED	WILL					
8.1 1 ● Move the end effector in linear mode with respect to the base frame.	COMPLETED	Calandra,					
8.2 1 ● Move the end effector in linear mode with respect to the end effector frame.	COMPLETED	Calandra,					
8.3 1 ● Reorient the end effector without changing the position of the tip.	COMPLETED	Calandra,					
8.4 1 ● Jog any of the joints.	COMPLETED	Calandra,					
8.5 0.5 ● Able to move at different speeds.	COMPLETED	Calandra,					
9.0 RAPID:Motion (/6)							
Able to move the robot to a pose using matlab, given a single command.	COMPLETED	Will,					
9.1 1 ● Move the end effector to a specified position relative to table home.	COMPLETED	Will,					
9.2 1 ● Move the end effector to a specified position relative to conveyor home.	COMPLETED	Will,					
9.3 1 ● Move to a specified pose (set of joint angles).	COMPLETED	WIll,					
9.4 1 ● Reorient the end effector.	COMPLETED	Will,					
9.5 1.5 ● Move in linear motion mode.	COMPLETED	Will,					
9.6 0.5 ● Able to move at different speeds.	COMPLETED	Will,					
10.0 GUI:Pause and resume (/1.5)							
10.1 0.5 ● Pause the current motion task, stop the robot from moving.	COMPLETED	Emma, Anna					
10.2 0.5 ● Resume the current motion task, continue the previous move command.	COMPLETED	Emma, Anna					
10.3 0.5 ● Cancel the current motion task, stop the robot, prepare for new move command.	COMPLETED	Emma, Anna					
11.0 RAPID:Pause and resume (/3)							
11.1 1 ● Pause the current motion task, stop the robot from moving.	COMPLETED	Leon					
11.2 1 ● Resume the current motion task, continue the previous move command.	COMPLETED	Leon					
11.3 1 ● Cancel the current motion task, stop the robot, prepare for new move command.	COMPLETED	Leon					
12.0 Error handling (/4)							
12.1 1 Handle all communication errors in RAPID without needing to restart tasks.	COMPLETED	Leon					
12.2 1 Handle all communication errors in Matlab without needing to restart the GUI (including incorrect IP	COMPLETED	Anna					
address, socket timeout, unable to connect to the robot).	COMPLETED	Anna					

12.3 1 Advise the user if a move command is unreachable.	COMPLETED	Emma, Leon					
12.4 1 Advise the user if network connection is lost.	COMPLETED	Anna					
13.0 Documentation (/5)							
13.1 1 Evidence of proper code version management. Showing each student's contribution. git commit log	COMPLETED	Everyone					
All code must be well structured and documented. Use appropriate variable and function names.	COMPLETED	Everyone					
13.2 1 ● Matlab – Include usage example and help command.	COMPLETED	Everyone					
13.3 1 ● RAPID	COMPLETED	Everyone					
13.4 1 Document the communication protocol used to communicate between Matlab and RAPID. The structure	COMPLETED	Leon and Anna					
of the message, what each field represents, valid value.	COMPLETED	Leon and Anna					
13.5 1 List of tasks assigned to each member and indicate percentage completion.	COMPLETED	Emma					
14.0 Testing (/7.5)							
Develop and document a test plan (to show to your demonstrator) and write test functions for	COMPLETED	Everyone					
14.1 1 ● GUI:Robot status (Hint: Jog robot to a position, check the display).	COMPLETED	Everyone					
14.2 1 ● GUI:Video feeds (Hint: Check block are displayed correctly).	COMPLETED	Everyone					
14.3 1.5 ● Communication protocol (Hint: print human readable information on flex pendent and matlab).	COMPLETED	Everyone					
14.4 3 ● GUI:Pose and RAPID:Motion (Hint: Do a move command and check the robot position).	COMPLETED	Everyone					
14.5 1 ● DIO (Hint: Test DIO).	COMPLETED	Everyone					
The test plan should include a number of test cases with procedure, required human input, and	COMPLETED	Everyone					
expected outputs. Testing should be easy to use and automated when possible. All requirements in	COMPLETED	Everyone					
each section need to be tested. More than one test case per requirement may be requested.	COMPLETED	Everyone					
15.0 Extra Tasks							
Develop a server	COMPLETED	Calandra					
Matlab Communication	COMPLETED	Anna					
Robot Studio Communication	COMPLETED	Leon					
Chat log	COMPLETED	Calandra					