

Requirements Embeddes Systems Project

ID	Name	Description	Version	Status
1	Service movement	In service mode, the conveyer belt shall be able to move to both directions with the specified velocity profile.	1	Done
2	Service speed	In service mode, speed of conveyer belt shall be modifiable by the user within 100 – 2200 rpm in steps of 100.	1	Done
3	Chain movement	In chain mode, the conveyer belt shall move only be able to move into the right direction, towards the next conveyer.	1	Done
4	Request left	If the controller is in idle state, the conveyer belt shall wait for request from left conveyer belt.	1	Done
5	Send wait	If conveyer belt is moving state and server running on the controller gets a request, the server shall send “Wait” to left conveyer belt.	1	Done
6	Send read	If the conveyer belt is in idle state and server receives a request, the server shall send “Ready” Signal to left conveyer belt	2	Done
7	Slow movement	If server sent “Ready”, conveyer belt shall start moving with $v = 100\text{rpm}$ for $t_{pp}=1$ second and get in moving state	2	Done
8	Send release	After conveyer belt is moving tpp with $v = 100\text{rpm}$, server shall send “Release” to left conveyer belt	2	Done
9	Profile movement	If server send “Release”, conveyer belt start moving with specified profile	2	Done
10	Send request	After conveyer belt is moving specified profile, client shall sent request to right conveyer belt	1	Done
11	Get wait	If client get “Wait”, conveyer belt shall be stop	2	Done
12	Get ready	If client get “Ready”, conveyer belt shall start moving with $v = 100\text{rpm}$	2	Done
13	Get release	If client get “Release”, conveyer belt shall be stop and get in idle state	2	Done
14	Controller Communication I	The Server implemented on the slave, must be able to understand the commands Wait, Ready and Release.	1	Done
15	Controller Communication II	The Client shall be able to send readable commands to the server of the next conveyor belt in line.	1	Done
16	Motor control	The speed of motor during the constant drive time t_t shall be controlled by closed loop PID.	1	Done

17	PID Controller	The PID controller is already provided by the user of the system.	1	Done
18	Operate mode	The conveyer belt shall be operated by local keyboard or telnet connection from a local PC in the Embedded Systems Laboratory U131.	1	Done
19	Information Chain Mode	The parameters for the max velocity, the current mode of operation, direction, rise and fall time, state, shall be displayed on display board.	1	Done
20	Information Service Mode	The parameters for the max velocity, the current mode of operation, direction, rise and fall time, state and cursor shall be displayed on display board.	1	Done
21	Keyboard Button Actions Stop mode	If "A" pressed mode shall change to service mode, If "B" pressed mode shall change to chain mode;	3	Done
22	Telnet Button Actions Stop mode	If "A" pressed mode shall change to service mode, If "B" pressed mode shall change to chain mode;	3	Done
23	Keyboard Button Actions service mode	If "C" pressed conveyer belt start, With number buttons tr,tf,tt shall be modifiable, If "F" pressed mode shall change to stop mode With number buttons v shall be modifiable,	3	Done
24	Telnet Button Actions service mode	If "C" pressed conveyer belt start, With number buttons tr,tf,tt shall be modifiable, If "F" pressed mode shall change to stop mode With number buttons v shall be modifiable,	3	Done
25	Keyboard Button Actions chain mode	If "F" pressed mode shall change to stop mode	1	Done
26	Telnet Button Actions chain mode	If "F" pressed mode shall change to stop mode	1	Done
27	Hardware	The system shall be implemented on the lab boards in the Embedded Systems Lab in U131.	1	Done
28	Used Technology	The conveyer belt shall be programmed with the programming languages C/C++.	1	Done
29	Changes	If a requirement changes, the explicit border wall	1	Done

30	Profile parameter v	In chain mode, velocity-parameter v shall be 1800rpm	1	Done
31	Profile parameter tr/tf	In chain mode, acceleration-time tr and tf shall be 1 second long.	1	Done
32	Profile parameter tt	In chain mode, the parameter tt shall be 8 seconds.	1	Done
33	Change mode	The Mode of Operation shall only be changeable in stop state and error state.	1	Done
34	Extra Task Stop	If the conveyor is in service mode, the running profile can be interrupted at any time.	1	Done
35	Extra Task Time	If the conveyor is in service mode, the time parameters tt, tr and tf of the profile are modifiable via a local telnet connection and directly from the keyboard.	1	To Do
36	Extra Task FTA	A complete top down Fault Tree Analysis shall be performed for the system.	1	Done