



Franka Emika Panda Robot


SAFE WORK INSTRUCTIONS

Faculty & Department	Engineering: M+AE and ECSE		
Location	Building 36 (18 Alliance Lane), Ground floor		
Created By	Calvin Vong	Sign/Date:	 25/5/2021
Approved By	Dana Kulic	Sign/Date:	 2021-06-15
Risk Number 29530	Initial Issue 2021-05-13	Current Version 2021-05-25	Next Review 2024-05-25

Scope: This document applies to users of the Franka Emika Panda robot

Authorisations: All users of this equipment must be inducted (see induction form)


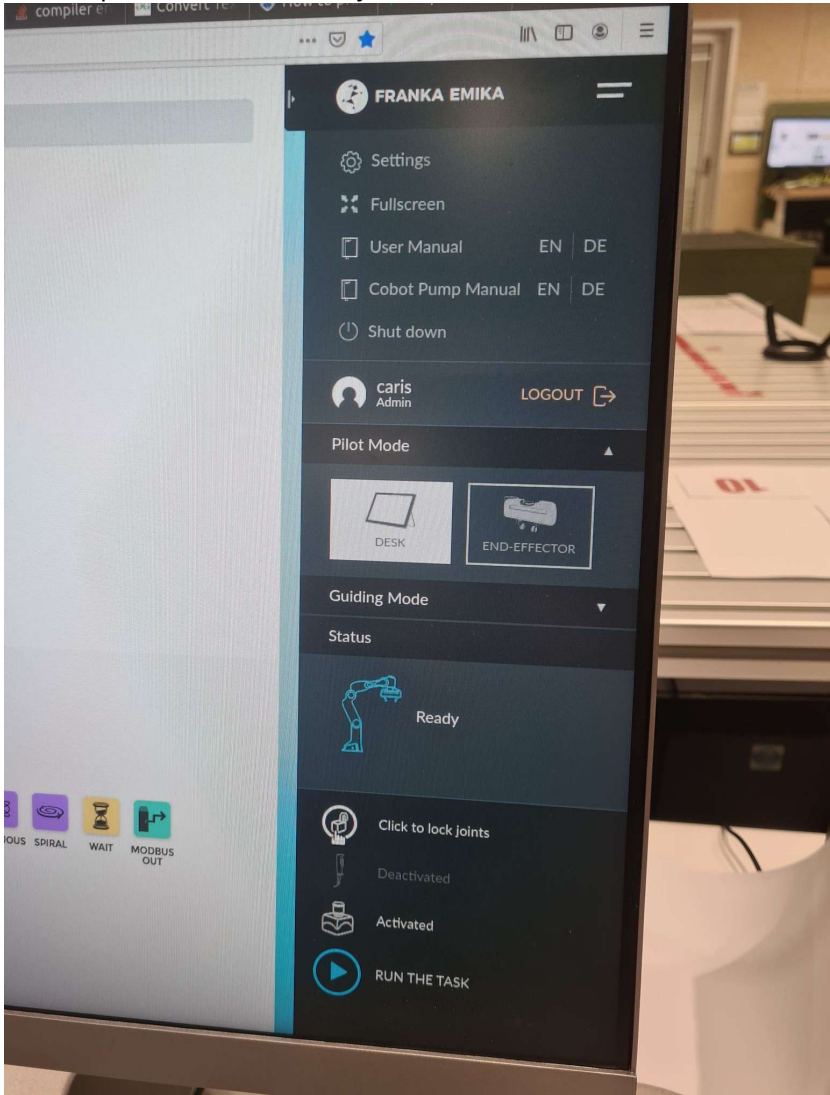
Emergency Procedures

Event	Action
Unexpected robot motion	<ul style="list-style-type: none"> Press the big red E-Stop button to cut power to motors and control computer. 
Robot pins human	<ul style="list-style-type: none"> Press big red E-Stop button OR Force robot joints to move by pushing or pulling the robot arm hard. NOTE: only move the robot arm by pushing or pulling the robot arm hard in case of emergency, as this can damage the robot.

Safety Requirements

Research Type	Safety Requirement
Two-person rule	<ul style="list-style-type: none"> A second person who has also gone through the relevant induction and emergency procedure training must be in the office area available for support when conducting experiments with the robot.
Experiments and development	<ul style="list-style-type: none"> Test your application in a simulator before testing it on the physical robot. FYP, PhD students: application must be approved by supervisor in simulation before proceeding to hardware. When conducting an experiment on the physical robot for the first time, supervisor or another trained staff member should be in the same room.

Turn On / Off

Desired Outcome	Instructions
Turn on	<p>On the robot controller</p> <ul style="list-style-type: none"> Switch ON physical power button 
Enable	<p>On the computer, go to the Franka Emika web interface</p> <ol style="list-style-type: none"> go to “desk” press “click to unlock joints” 
Disable	<p>On the computer, go to the Franka Emika web interface (See picture from the “Enable” procedure)</p> <ol style="list-style-type: none"> go to “desk”

	2. press “click to lock joints”
Turn off	<ol style="list-style-type: none"> 1. Move the robot to home configuration approximately 2. Press “click to lock joints” from the Franka Emika web interface 3. Press “Shut down” from the Franka Emika web interface 4. WAIT for the shut down complete message from the Franka Emika web interface before moving onto the next step 5. Switch OFF physical power button on the robot controller (See picture from the “Turn on” procedure)

Control Modes

Desired Outcome	Instructions
Control from computer	<p>On the Franka Emika interface, a drag & drop interface can be used to control the robot</p> <p>On Computer</p> <ul style="list-style-type: none"> • Launch programs at will <ul style="list-style-type: none"> ○ Config: Robot IP address = 172.16.0.2
Move by hand (Freedrive)	<p>On the Panda:</p> <ul style="list-style-type: none"> • pinch down the two physical button (softly) to move the robot • pinch down the two physical button hard to stop the robot movement