

Robotics 1 Fundamentals (dobot blockly)

Michail Beliatis

Digi Microfactory Lab at AU Herning, BTECH

Introduction to lab good practices for using robots

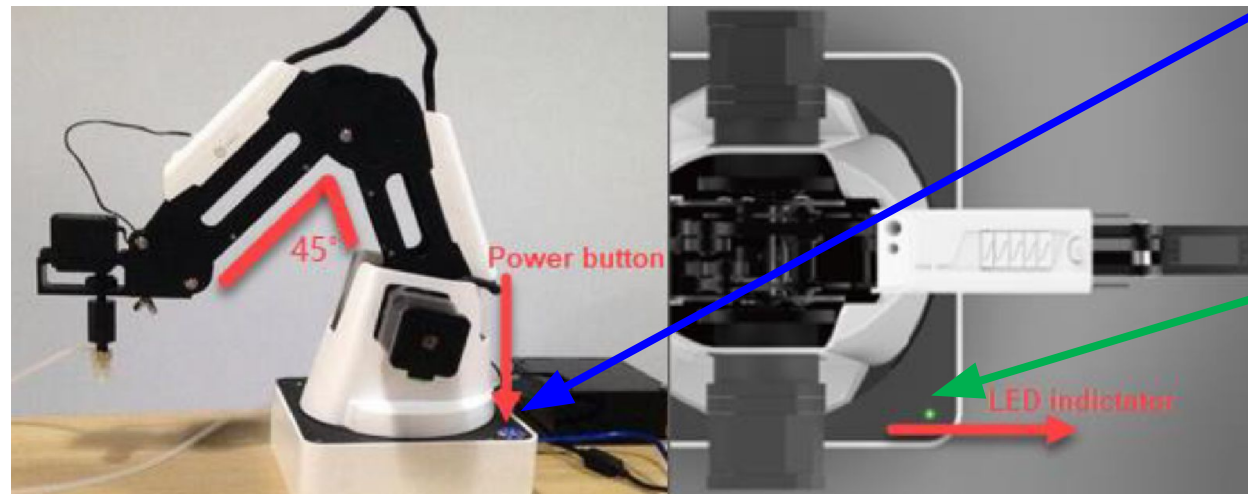
General Security



Robotic arm is an electrical equipment. Non-professional technicians cannot modify the wire, otherwise it is vulnerable to injury the device or the person.

- Please make the Dobot Magician in the workspace with a 45° angle between the Forearm and Rear Arm (as shown in Figure 1.1) before starting up. If the LED indicator turns red after starting up, it indicates that the Dobot Magician is at a limited position. Please make the Dobot Magician in the workspace.

SOS Hold with you hand the arm to form 45 degrees angle, before powering up (blue button)



Wait until LED is Green and not flashing

Figure 1.1 The Forearm and Rear Arm position

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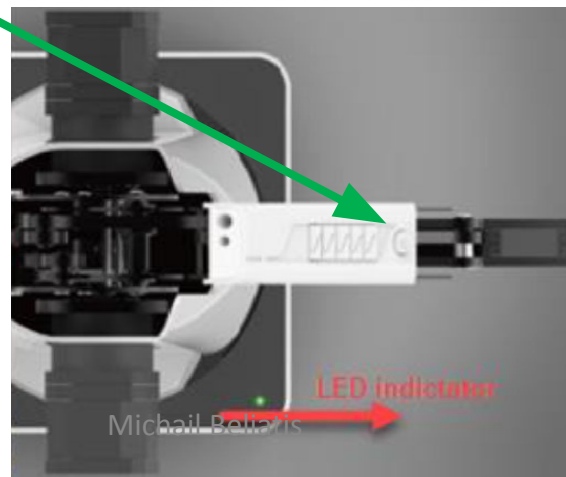
If the **LED indicator is red** after powering on the Dobot Magician, it means that the robotic arm reaches its limited position. To go back to the workspace, **press and hold the**

unlock button



on the Forearm to move the robotic arm to another desired position

After releasing the button the **LED indicator turns green.**



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- Dobot Magician will move slowly to the specific position when shutdown. DO NOT put hands into the workspace of the Dobot while running, to avoid bruising or pinching. Only once the LED indicator completely turns off, the Dobot Magician can be powered down.
- If the coordinates of the Dobot Magician shown on the DobotStudio are abnormal, please press the **Reset** button on the back of the base to reset Dobot Magician or click **Home** on the DobotStudio page to perform homing.
 - **During resetting**, Dobot Magician will disconnect from the PC automatically and the LED indicator on the base turns yellow. **About 5 seconds later, if the LED indicator turns green, it indicates that the reset is successful.**
 - **During homing**, Dobot Magician will rotate clockwise to the limited position and then return to the homing point automatically, and the LED indicator on the base turns blue and is blinking. **After homing, if there is a beep sound and the LED indicator turns green, it indicates that the homing is successful.**
- **Please turn off the Dobot Magician completely first before connecting or disconnecting external equipment, such as Bluetooth, WIFI, stick controller, infrared sensor, color sensor, etc. Or, it causes damage to your device.**

A workshop to familiarize with robotics and automatic assembling

- Go to below link where all material (ppt/software) is available online:
 - <https://drive.google.com/drive/folders/1-Cf8aV5N3fLMJTNy8FtalDqu8nPtKLDa?usp=sharing>
- First install the Dobot Studio from given link:
 - For windows: (Lab PCs and desktops are already installed with this software)
 - <https://drive.google.com/file/d/1-2-p2yUm40Ip3vpVoF6RPCOi68ddN7Bj/view?usp=sharing>
 - For Mac Notebooks:
 - <https://drive.google.com/file/d/1-5BxAzwUq-MIzKnoWQnPMvLUpEEQJBCz/view?usp=sharing>
- Now perform robot exercise which is given in below link:
 - <https://drive.google.com/file/d/1-6Kj3KYiaPL3LCJyY6DMJTT89N4q30IM/view?usp=sharing>

Activity 2 – AI autonomous driving cars



- Download the mobile app in your phone
- Donkey Car Controller -
<https://play.google.com/store/apps/details?id=com.robocarLtd.RobocarController&hl=en&gl=US>
- Connect with your phone to Digi Lab WiFi and open the Donkey Car mobile app.
- Connect to your car via WiFi and drive it using the pads on your phone for training.
- Once done, send the data for AI training and upload back to the car the ML model, once you succeed the car should run autonomously.

Activity 3 - Blockchain for Wind Industry

Digital Operations

- Go to the Digi Microfactory stand in the tends area and try to screw a bolt with the digital wrench. Follow the instructions manual...

