ROB-E

USER MANUAL

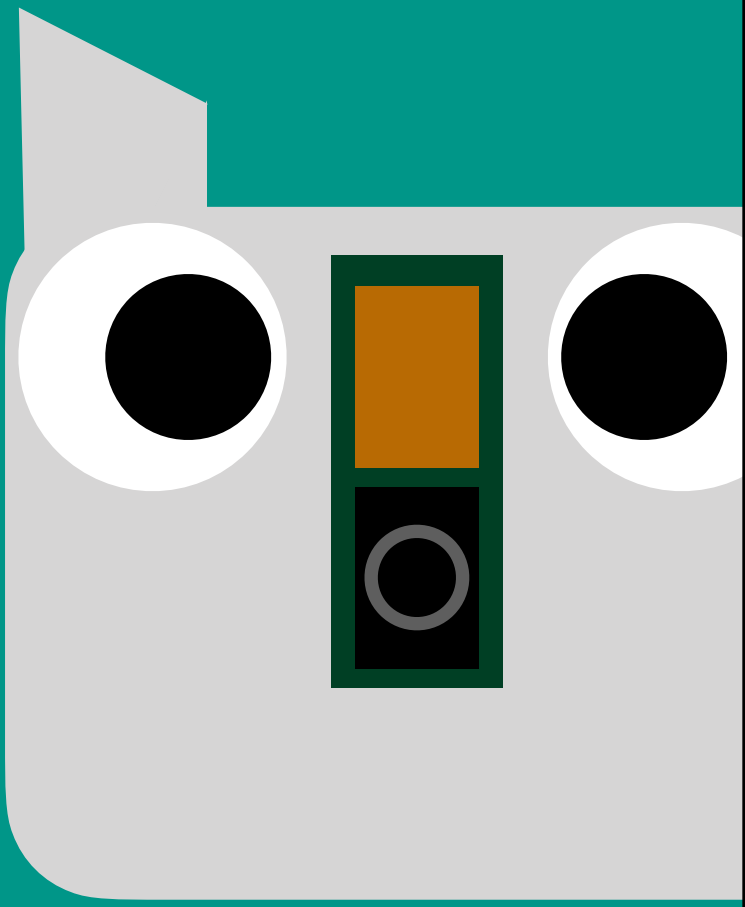


TABLE OF CONTENTS

1. Setting Up The Mobile App

i. For iOS users ____ 2
ii. For Android users ____ 2
iii. Signing-in to the app ____ 3

2. Setting Up Rob-E & Environment

i. Building path ____ 5
ii. Taking out/putting in batteries ____ 5

3. Connecting & Running A Task

i. Connect phone to Rob-E ____ 7
ii. Running a task/script ____ 8
iii. Accessing controller & camera ____ 9

4. Functions & Scenarios ____ 10

5. Troubleshooting ____ 13

Rob-E is a Raspberry-Pi based robot. It is part of the master thesis' study of Fauziah Permatasari, under the supervision of Jun.-Prof. Dr. Jan Ehlers of Bauhaus Uni-Weimar's Faculty of Media.

This field study is to research the impacts of having a robot-pet in people's daily life. In hopes to help manage stress and lift-up the mood, especially during this social distancing period.

Rob-E implements machine learning model to detect emotional state of its user, as well as facial recognition model. If you have questions or needing assistance related to the study, please reach: fauziah.permatasari@uni-weimar.de

ADDITIONAL COMPONENTS

1x

Charger

6x

Li-Ion Batteries

1x

Field Journal (& pen)

15x

Path Puzzle

1.

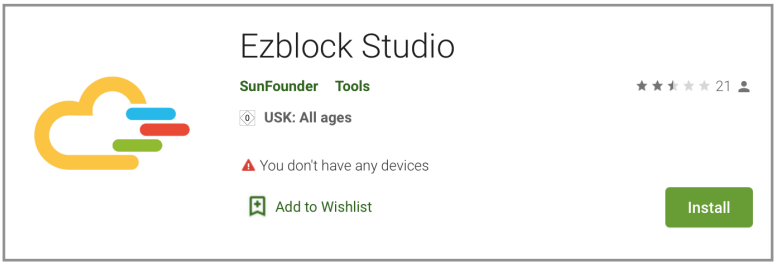
SETTING UP THE MOBILE APP

For iOS Users

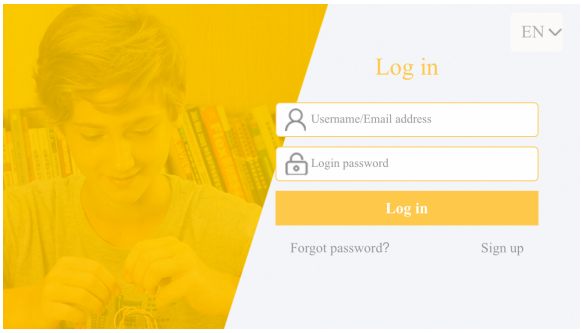
- Go to the AppStore and search for “Ezblock Studio”.

For Android Users

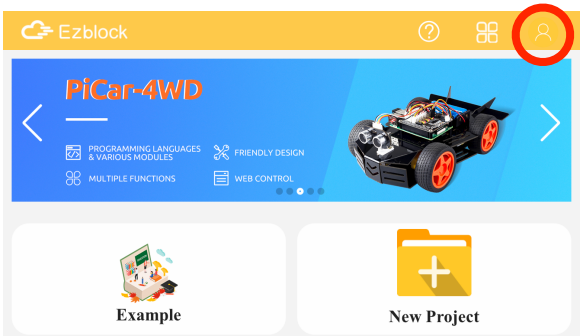
- Go to the Play Store and search for “Ezblock Studio”.



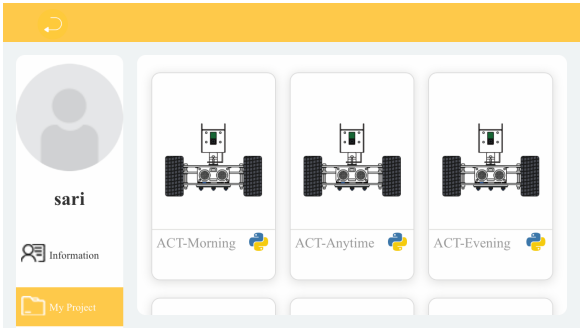
- Download the app, and after the installation, enter the fo-llowing creden-tials:
  User:
  sari
  Password:
  FieldStudy21



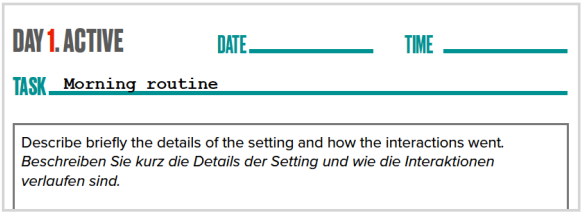
- You will then be presented with the homepage. Click on the '**Profile**' icon as marked with the red circle.



- Select '**My Project**' and you will be shown a full list of the tasks.



- Please refer the **Field Journal** to know the order of tasks needed to be run throughout the experiment period.



2.

SETTING UP ROB-E & ENVIRONMENT

What You Need

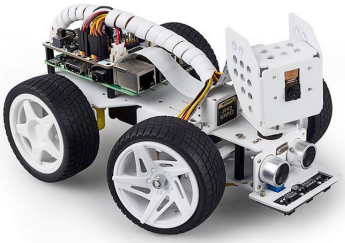
2x

Fully Charged Li-Ion Batteries

As much as needed

Path Puzzle

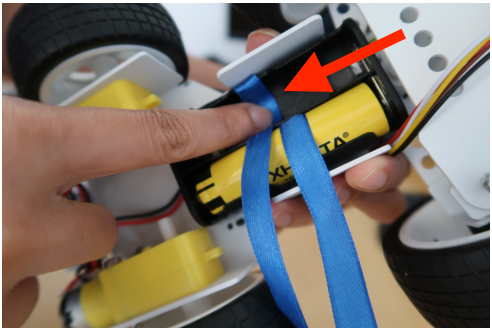
1x



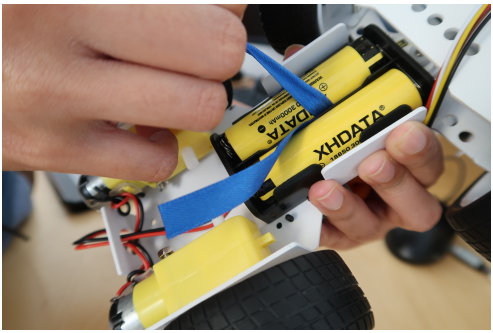
Rob-E

- Using the path puzzle, build the path that you'd like Rob-E to drive/follow through the experiment. The double sided stickers are floor-safe, meaning it won't leave any residue when taken-off.

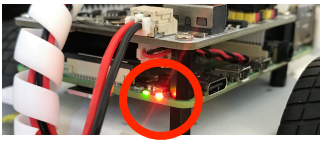
- **To put the batteries in their slots**, please be sure that part of the blue ribbons are placed at the **inner side**. This is to make sure that it will be easier when taking out the batteries later.

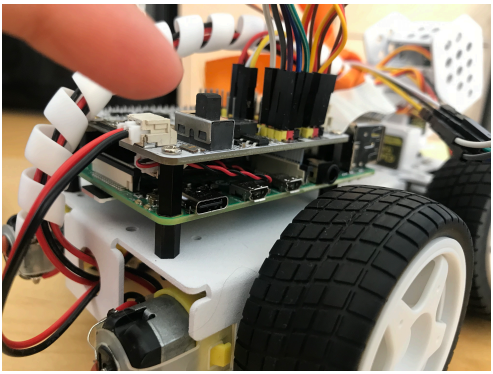


- **To take out the batteries**, pull the respective blue ribbon of each battery. Please be careful when taking out the batteries, and avoid pressing on the Raspberry-Pi board.



- **To turn Rob-E on**, move the pictured switch to the left. The red & green light of the Raspberry-Pi board will light/up.

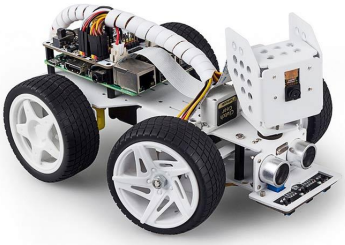




3.

CONNECTING & RUNNING A TASK

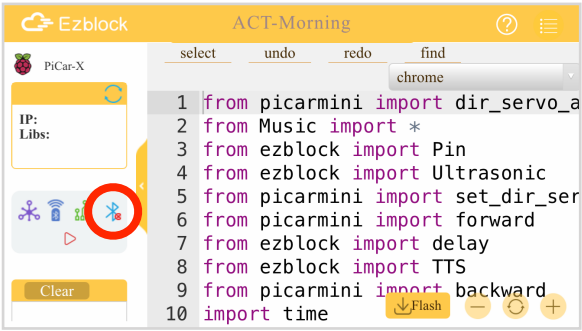
What You Need

1x	 Fully Configured Rob-E & Environment
1x	Your Mobilephone (Bluetooth On)
1x	Installed & Logged-in Ezblock App

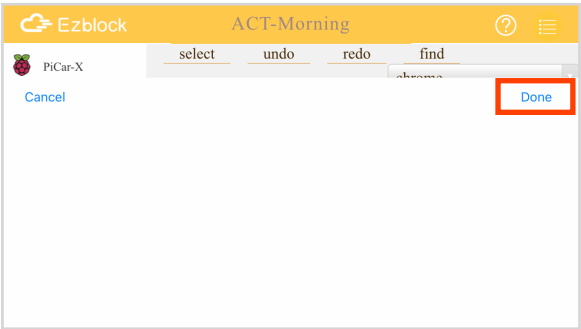
- **To connect your phone to Rob-E,** first turn the Bluetooth on and make your phone discoverable. Also switch Rob-E on, and enter the Ezblock Studio app on your phone.

- Click the '**Profile**' icon, select '**My Project**', and **pick the task which you want to run**.

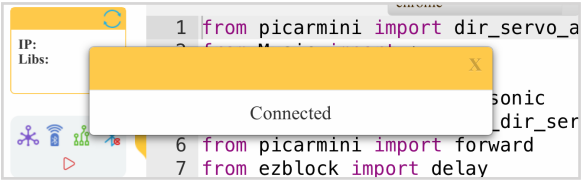
- Once you're inside the specific task' page, **click on the Bluetooth icon**.



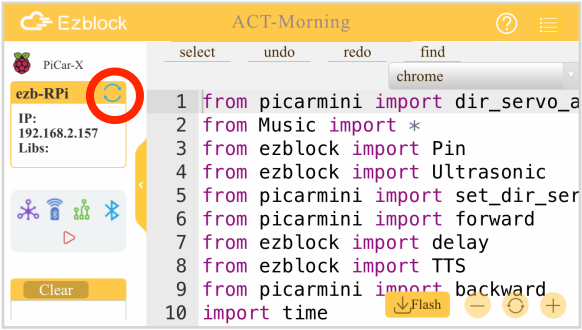
- Click '**Done**'. If you are unable to do so, try turning-off and turning-on Rob-E. If the problem persists, try changing the batteries to fully-charged ones.

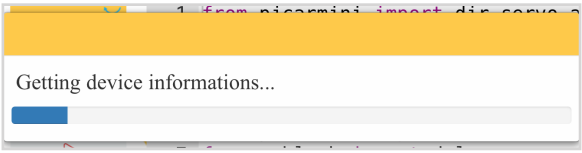


- Once connected, you will see the pop-up notification.

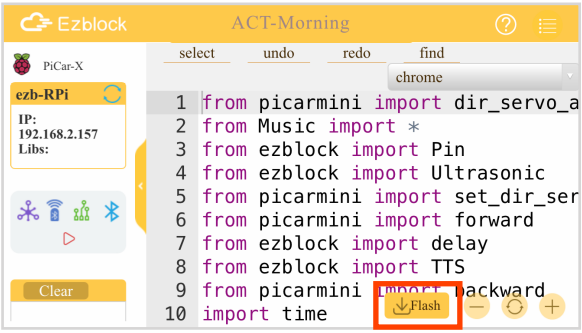


- Click on the ‘**Refresh IP**’ icon to retrieve the IP address of Rob-E.

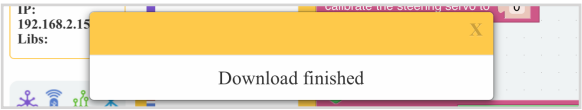




- To upload the script, click ‘**Flash**’ and wait until upload is done. Make sure the phone’s screen does not turn off during this time.

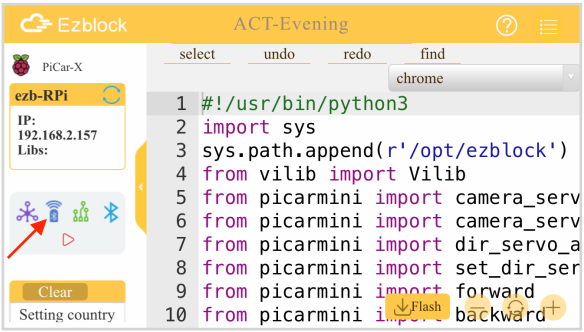


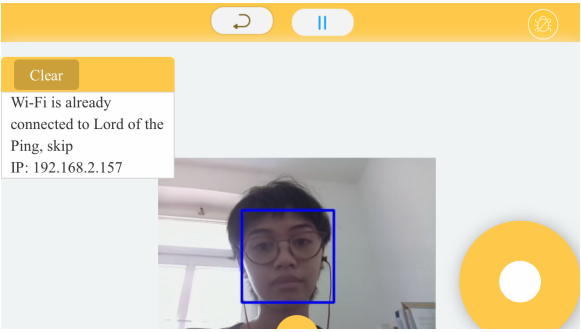
- If the upload is successful completed, you will get a pop-up notification.



- For these 3 tasks:
  i. Active - Anytime
  ii. Active - Evening
  iii. Passive - Anytime

  you can use a joystick controller and/or view the camera stre-am. Access these by clicking the icon shown.





- Always make sure Rob-E is off before trying to change the batteries.

- **To switch Rob-E off**, simply do so with the physical switch you used to switch it on earlier.

- For **troubleshooting** issues, refer to **Chapter 5 at page 13**.

4.

FUNCTIONS & SCENARIOS

Morning Routine	
Active Time: ~ 12 minutes or up to the user	→ Rob-E says "Good morning". → Reads out the news (updated every morning, ~1:30 minutes). → Autonomous driving (wandering around) for 10:00 minutes while telling a funny story, hums/chats, and then plays music. → Rob-E screams "I'm tired!" continuously, User then can turn Rob-E off.
Passive Time: ~ 5 minutes	→ Follows a pre-determined path. → Stops and reads out news (updated every morning, ~1:30 minutes). → User turns Rob-E off.

Morning Routine Notices

Active : + Please put Rob-E on the floor to roam around.
+ Avoid hanging and/or narrow edges, e.g. chairs, half-opened door.

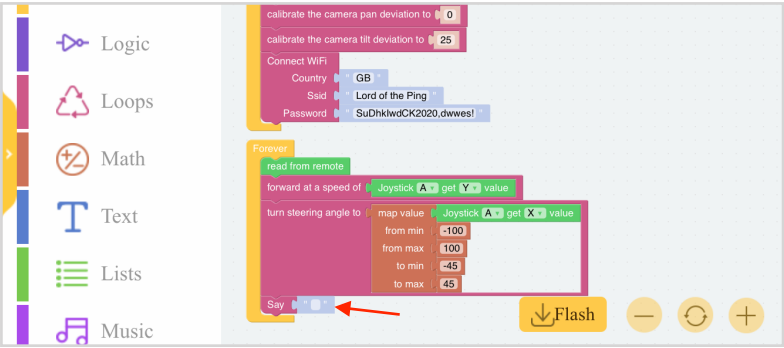
Passive : + Have the path already built before running the task.

Anytime of The Day Routine	
Active Time: up to the user	→ Rob-E is left to roam free. ◆ When a person is detected, Rob-E greets her/him/them, plays the titanic song. ◆ When 2 people are detected in a room, Rob-E, or Rob-E tells 'fact of the day'. ◆ When more than 5 people were detected in a room, Rob-E yells "Corona party!" and honks continuously.
Passive Time: up to the user	→ User controls how Rob-E drives. → Live-stream of Rob-E's camera, and user controls where Rob-E is going. → User can write something, and Rob-E will then read this input out loud.

Anytime of the Day Routine Notices

Active : + Please put Rob-E on the floor to roam around.
+ Avoid hanging and/or narrow edges, e.g. chairs, half-opened door.
+ Camera stream is available to access, please refer to page 9 on how to.

Passive : + Camera stream is available to access, please refer to page 9 on how to.
+ Enter the text you would like Rob-E to say here :



Evening Routine	
Active Time: ~ 10 minutes or up to the User	→ Asks the User, "How was your day today?". → Mentions tomorrow's reminders. → Rob-E detects facial expression of the user. → Rob-E reacts accordingly, ◆ If Sad: Says, "Aw please don't be sad" and tells a funny joke ~ 1:00 minute (updated every day). ◆ If Happy: Says, "I feel happy too!" and starts playing music and dances in circles. ◆ If Angry: Screams "Oh no! Don't hate me!!" and plays a sad song. ◆ If Surprised: Asks, "Do you want to hear a fun fact?" and tells a fun fact (updated every day). ◆ If Fearful: Says, "Do not be scared! I am here with you! Let me tell you a story!" and tells a story (updated every day). ◆ If Neutral: Tells some more news from the day. → Picks a random task out of the following option; ◆ Talking about his thoughts. ◆ Dancing to a happy song. ◆ Roaming around for some time. → Rob-E then will ask to be switched off.
Passive Time: ~ 5 minutes	→ Follows a pre-determined path. → Stops and mention tomorrow's reminders → User turns Rob-E around, and Rob-E drives back to point 0 and stops.

Evening Routine Notices

Active : + Please be ready to put Rob-E on the floor after the emotion detection step, so he can dance or roam around safely.
+ Avoid hanging and/or narrow edges, e.g. chairs, half-opened door.
+ Camera stream is available to access, please refer to page 9 on how to.

5.
TROUBLESHOOTING

"I Can't Connect my Phone's Bluetooth to Rob-E."
"I Can't Refresh the IP Address."
"The Task Upload Always Failed."
"There Were Errors When Running the Task."
"Why Are the Speaker's Volume so Low?"

1. Switch off and switch on Rob-E, then try again.

if problem persists,

2. Change the batteries to fully charged ones, then try again.

if problem persists,

3. Restart your WiFi router, then try again.

if problem persists,

4. Update your phone's Operating System, then try again.

"I Can't Access the Camera Stream!"
"How Do I Control Rob-E's Movements / Drive?"

The camera stream is available for the following tasks:

- **ACT-Anytime**
- **ACT-Evening**
- **PAS-Anytime**

The remote control joystick is available for the following task:

- **PAS-Anytime**

To access these features, please refer to page 9.

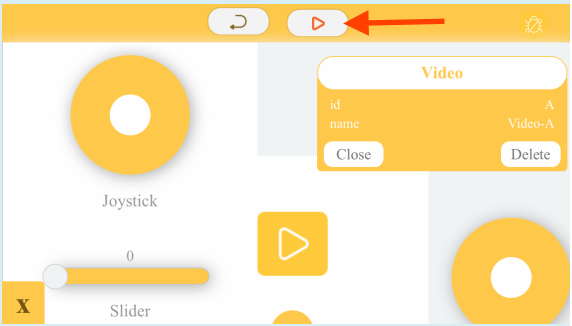
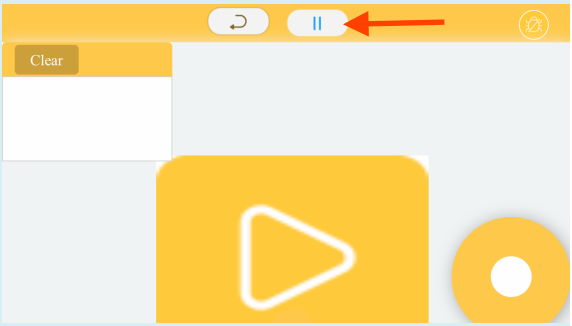
To troubleshoot the issues mentioned above:

1. Make sure that both Rob-E and your phone are connected to your WiFi network. On Rob-E, you would know this if you can refresh the IP Address (refer to page 8).

if problem persists,

2. Follow the steps below:

Click the play button.



If camera stream is still not showing, click pause, and then click play again.