Introduction to Distributed and Embedded Multi-agent Systems

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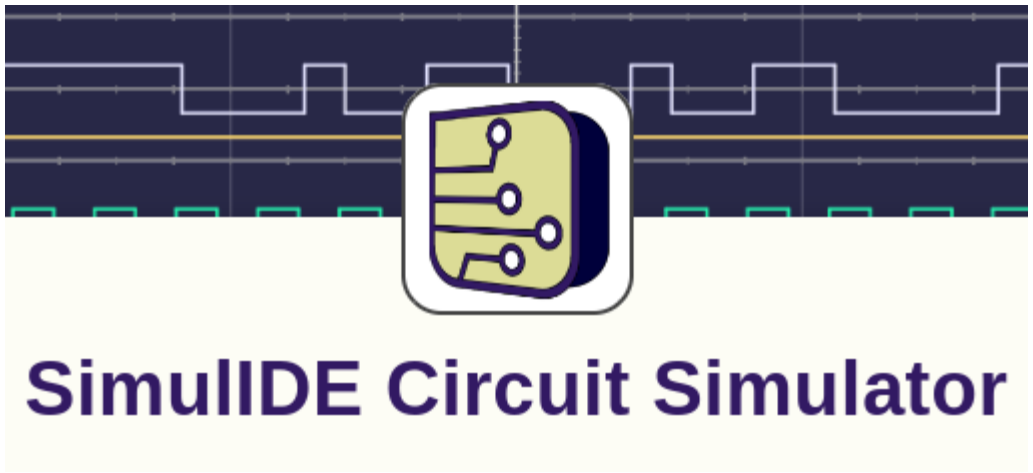
1 de Setembro 2023, Pelotas, RS

Development Tools

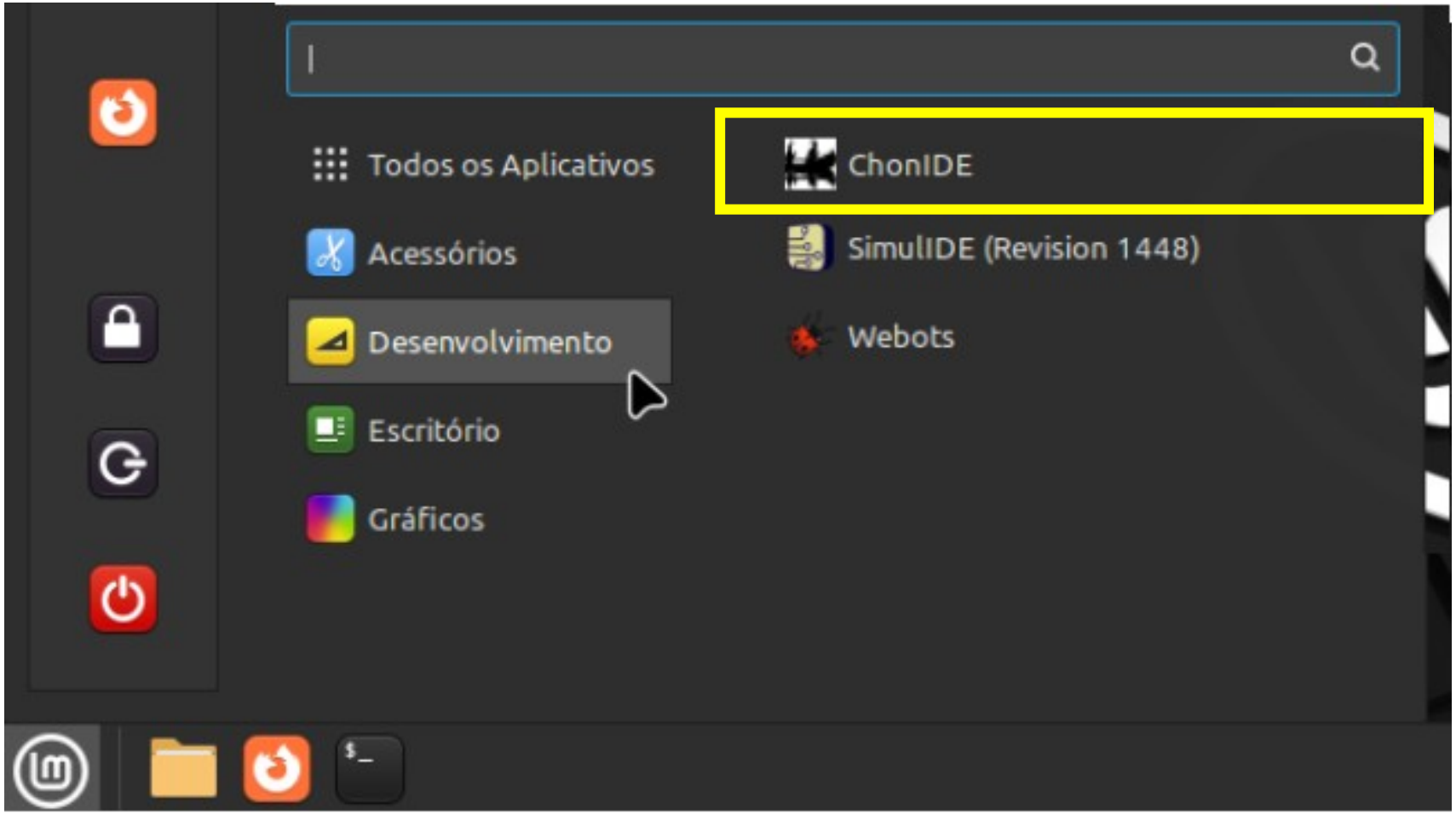
ChonIDE, SimulIDE e Webots



Souza de Jesus, V., Mori Lazarin, N., Pantoja, C.E., Vaz Alves, G., Ramos Alves de Lima, G., Viterbo, J. (2023). An IDE to Support the Development of Embedded Multi-Agent Systems. In: Mathieu, P., Dignum, F., Novais, P., De la Prieta, F. (eds) Advances in Practical Applications of Agents, Multi-Agent Systems, and Cognitive Mimetics. The PAAMS Collection. PAAMS 2023. Lecture Notes in Computer Science(), vol 13955. Springer, Cham. https://doi.org/10.1007/978-3-031-37616-0_29

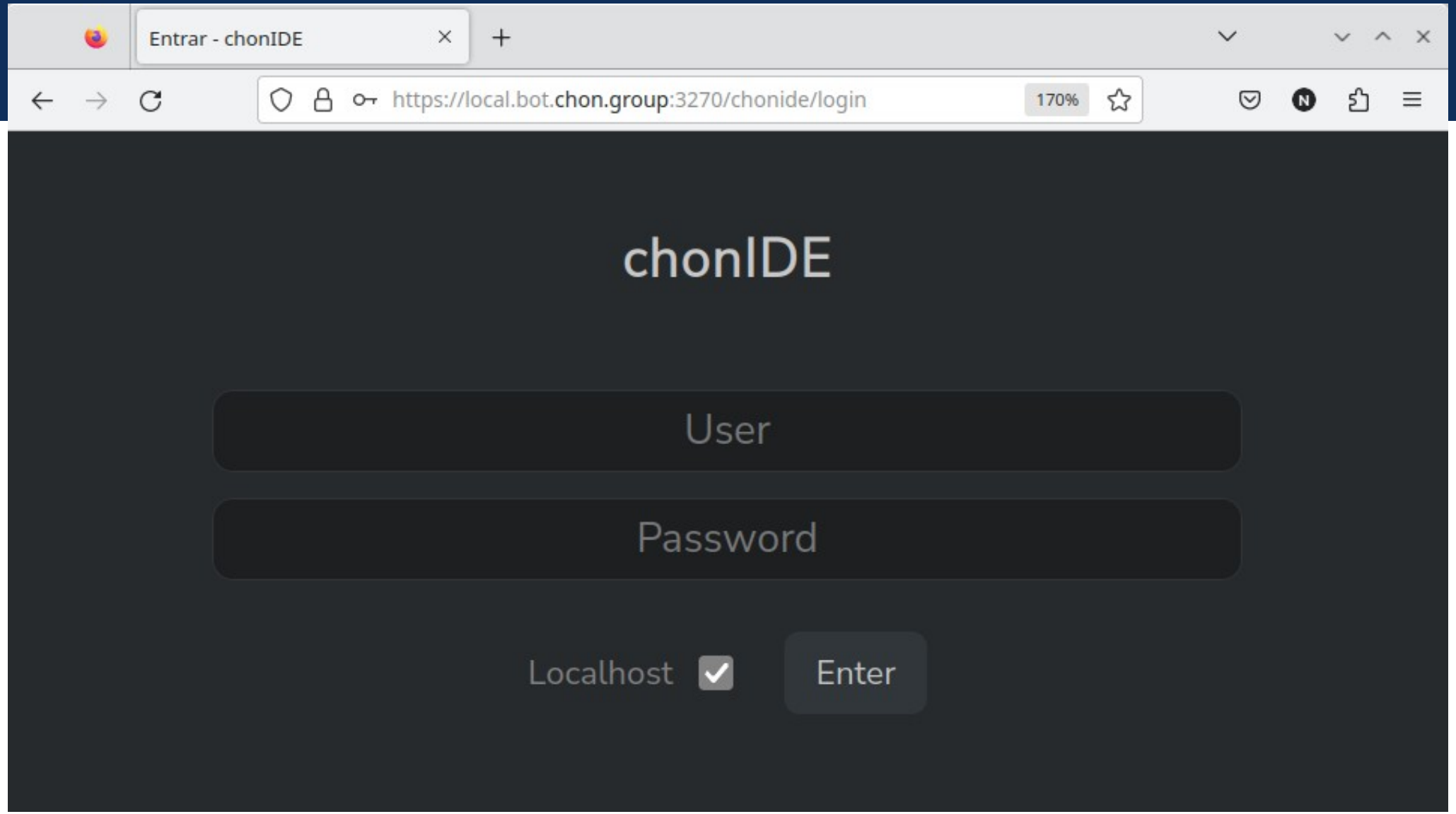
Michel, O. (1998). Webots: Symbiosis Between Virtual and Real Mobile Robots. In: Heudin, JC. (eds) Virtual Worlds. VW 1998. Lecture Notes in Computer Science(), vol 1434. Springer, Berlin, Heidelberg. https://doi.org/10.1007/3-540-68686-X_24

González, Santiago. “SimulIDE Circuit Simulator”, 2023. https://simulide.com.



Manual de Instalação
https://github.com/chon-group/chonIDE/tree/main/doc

ChonIDE



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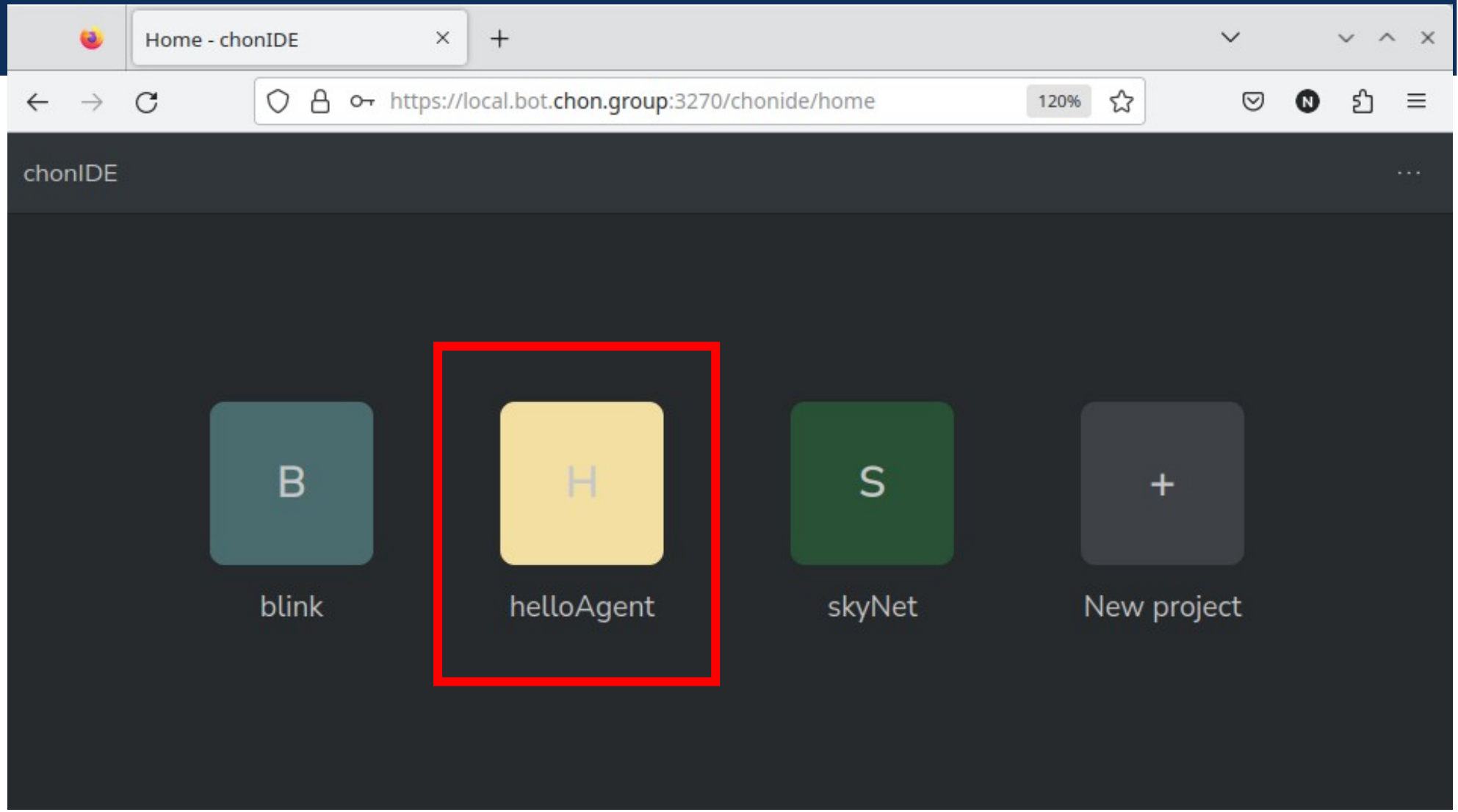
ChonIDE: helloAgent



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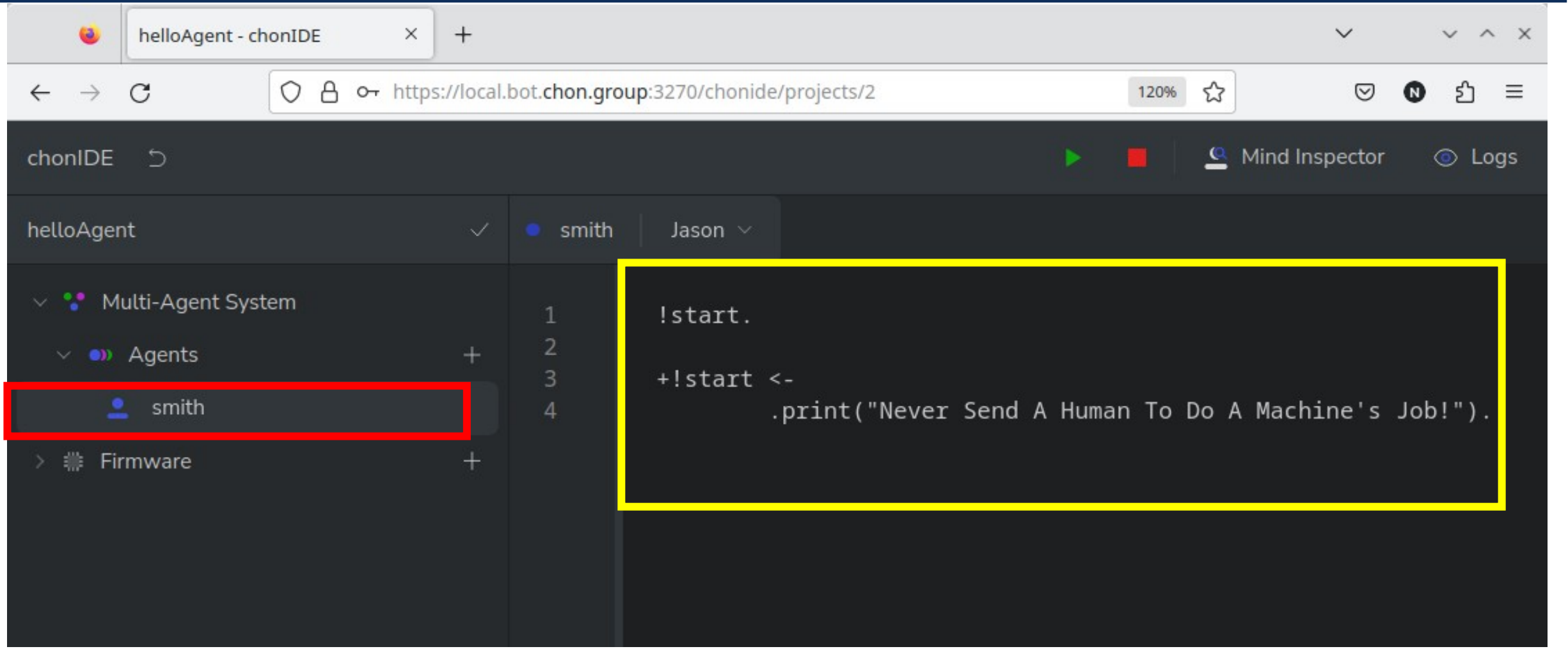
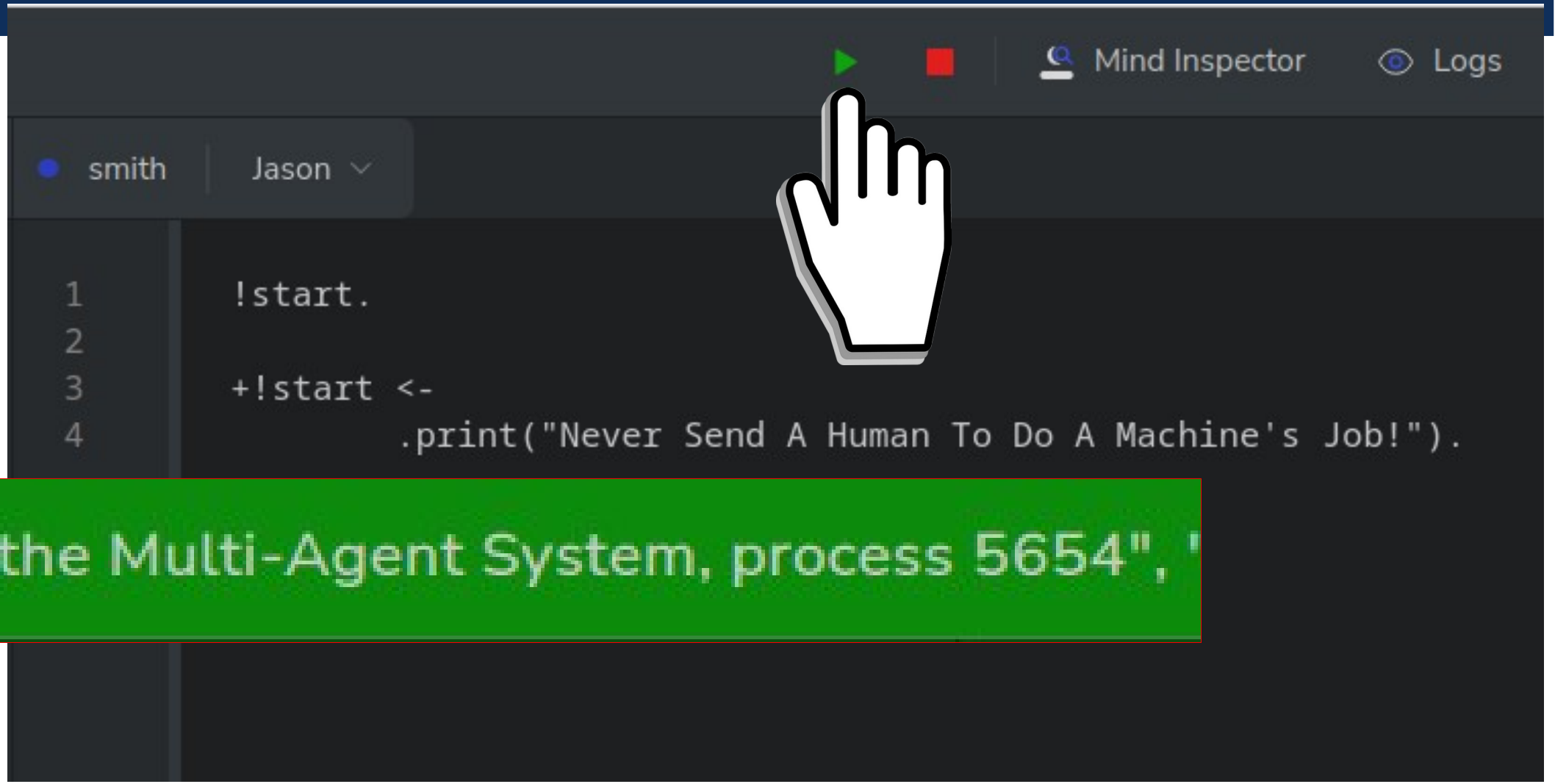
ChonIDE: helloAgent



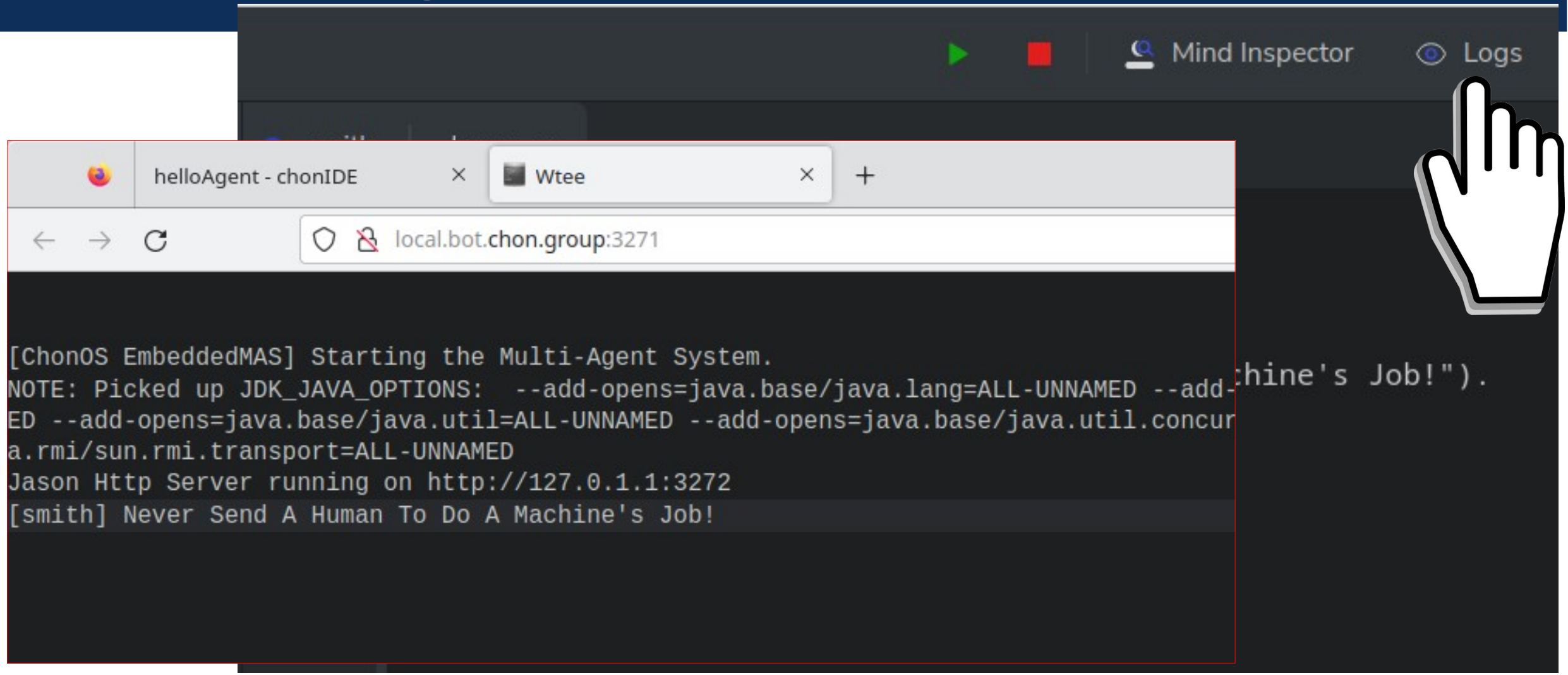
Souza de Jesus, V., Mori Lazarin, N., Pantoja, C.E., Vaz Alves, G., Ramos Alves de Lima, G., Viterbo, J. (2023). An IDE to Support the Development of Embedded Multi-Agent Systems. In: Mathieu, P., Dignum, F., Novais, P., De la Prieta, F. (eds) Advances in Practical Applications of Agents, Multi-Agent Systems, and Cognitive Mimetics. The PAAMS Collection. PAAMS 2023. Lecture Notes in Computer Science(), vol 13955. Springer, Cham. https://doi.org/10.1007/978-3-031-37616-0_29

ChonIDE: helloAgent



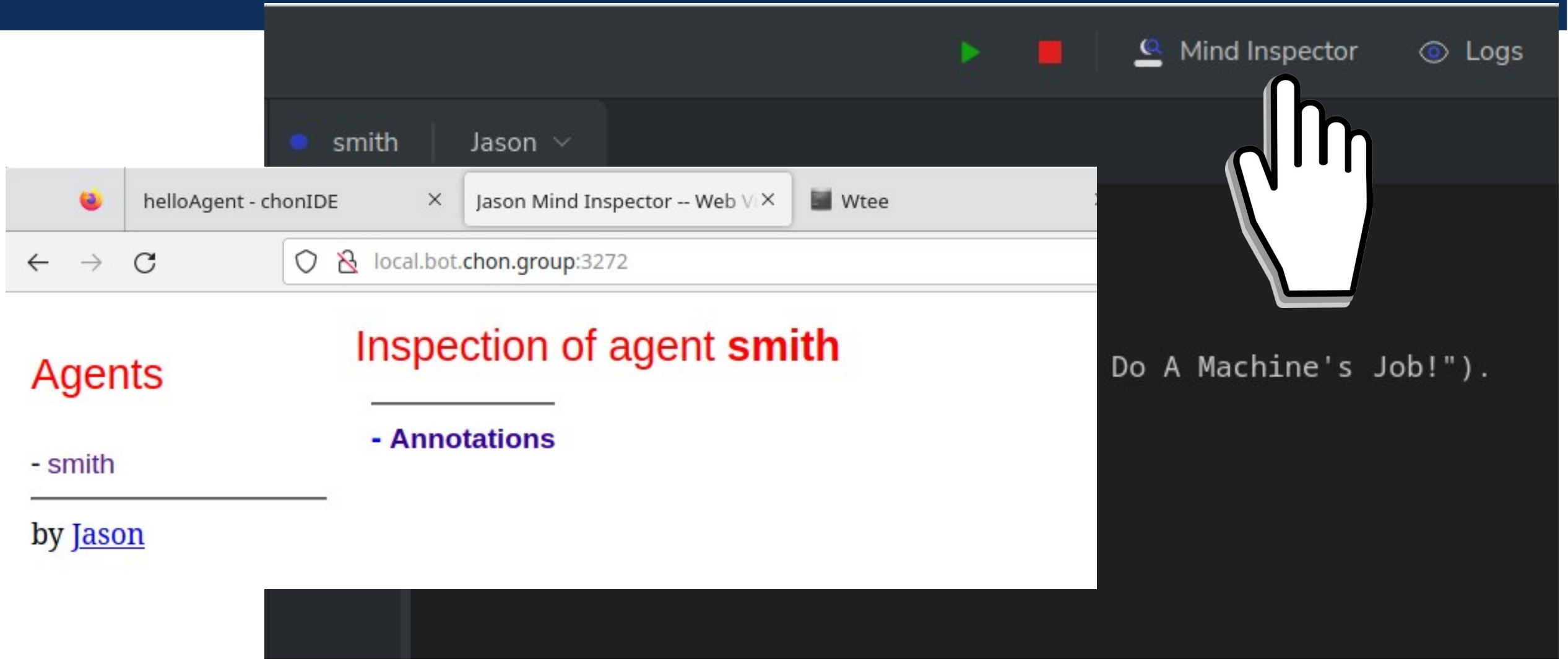
Souza de Jesus, V., Mori Lazarin, N., Pantoja, C.E., Vaz Alves, G., Ramos Alves de Lima, G., Viterbo, J. (2023). An IDE to Support the Development of Embedded Multi-Agent Systems. In: Mathieu, P., Dignum, F., Novais, P., De la Prieta, F. (eds) Advances in Practical Applications of Agents, Multi-Agent Systems, and Cognitive Mimetics. The PAAMS Collection. PAAMS 2023. Lecture Notes in Computer Science(), vol 13955. Springer, Cham. https://doi.org/10.1007/978-3-031-37616-0_29

ChonIDE: helloAgent



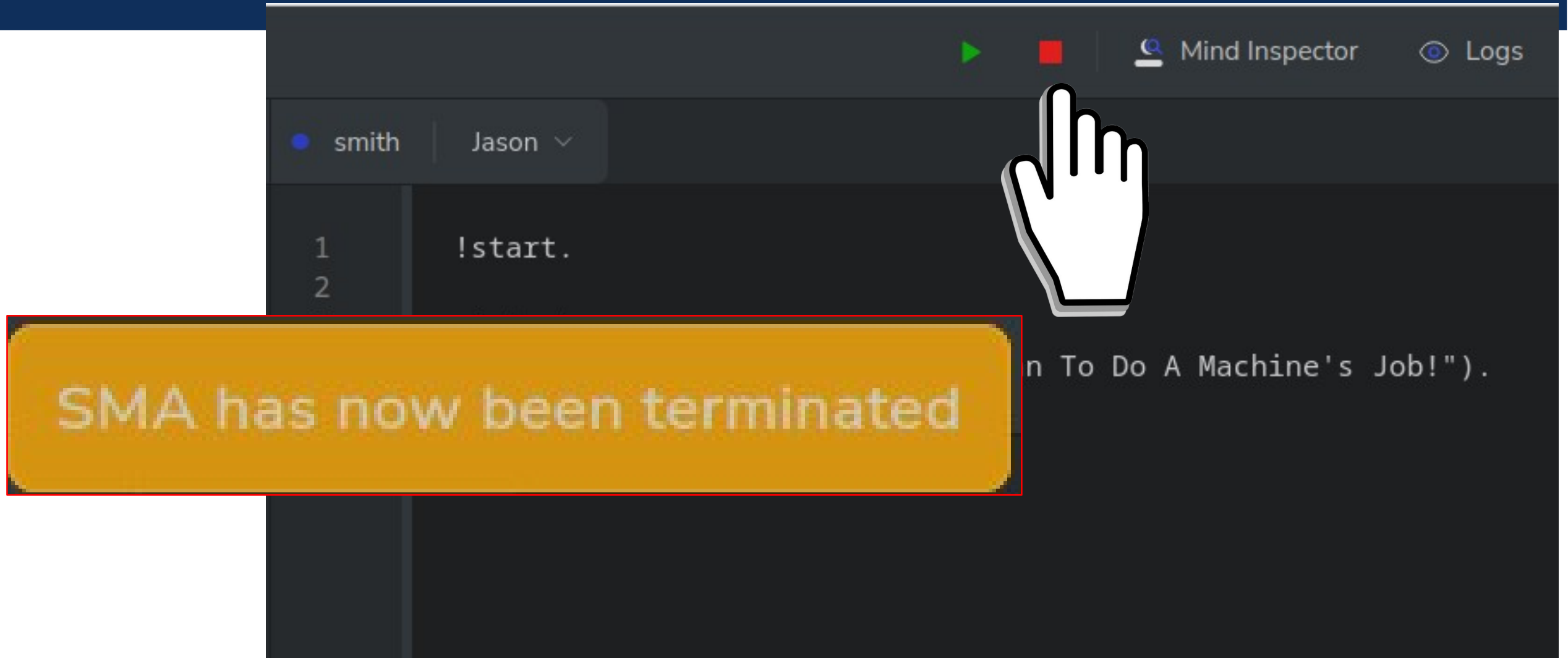
Pantoja, C.E., Jesus, V.S.d., Lazarin, N.M., Viterbo, J. (2023). A Spin-off Version of Jason for IoT and Embedded Multi-Agent Systems. In: Naldi, M.C., Bianchi, R.A.C. (eds) Intelligent Systems. BRACIS 2023. Lecture Notes in Computer Science(), vol 14195. Springer, Cham. https://doi.org/10.1007/978-3-031-45368-7_25

ChonIDE: helloAgent



Bordini, R.H., Hübner, J.F. (2006). BDI Agent Programming in AgentSpeak Using Jason . In: Toni, F., Torroni, P. (eds) Computational Logic in Multi-Agent Systems. CLIMA 2005. Lecture Notes in Computer Science(), vol 3900. Springer, Berlin, Heidelberg. https://doi.org/10.1007/11750734_9

ChonIDE: helloAgent



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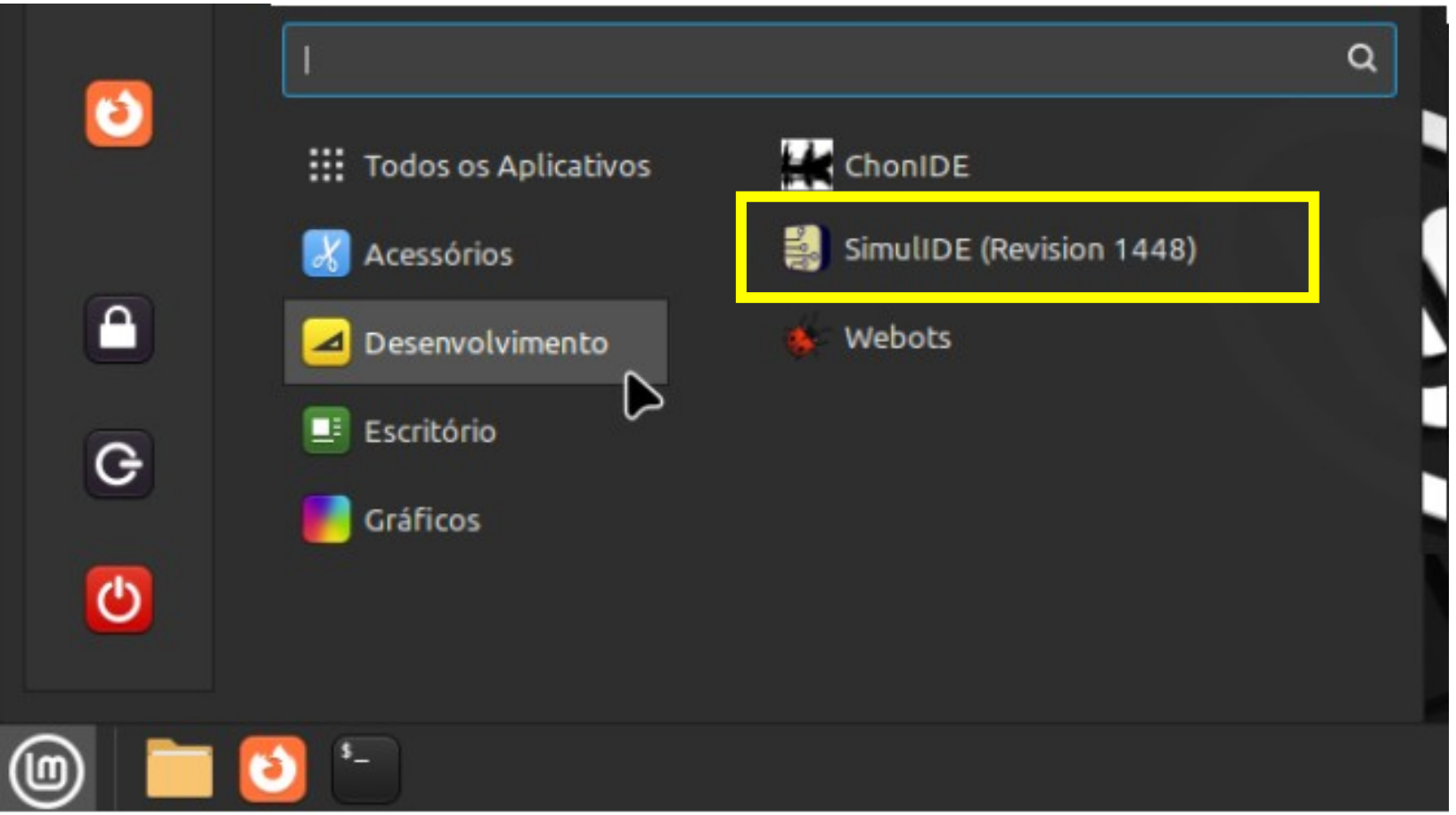
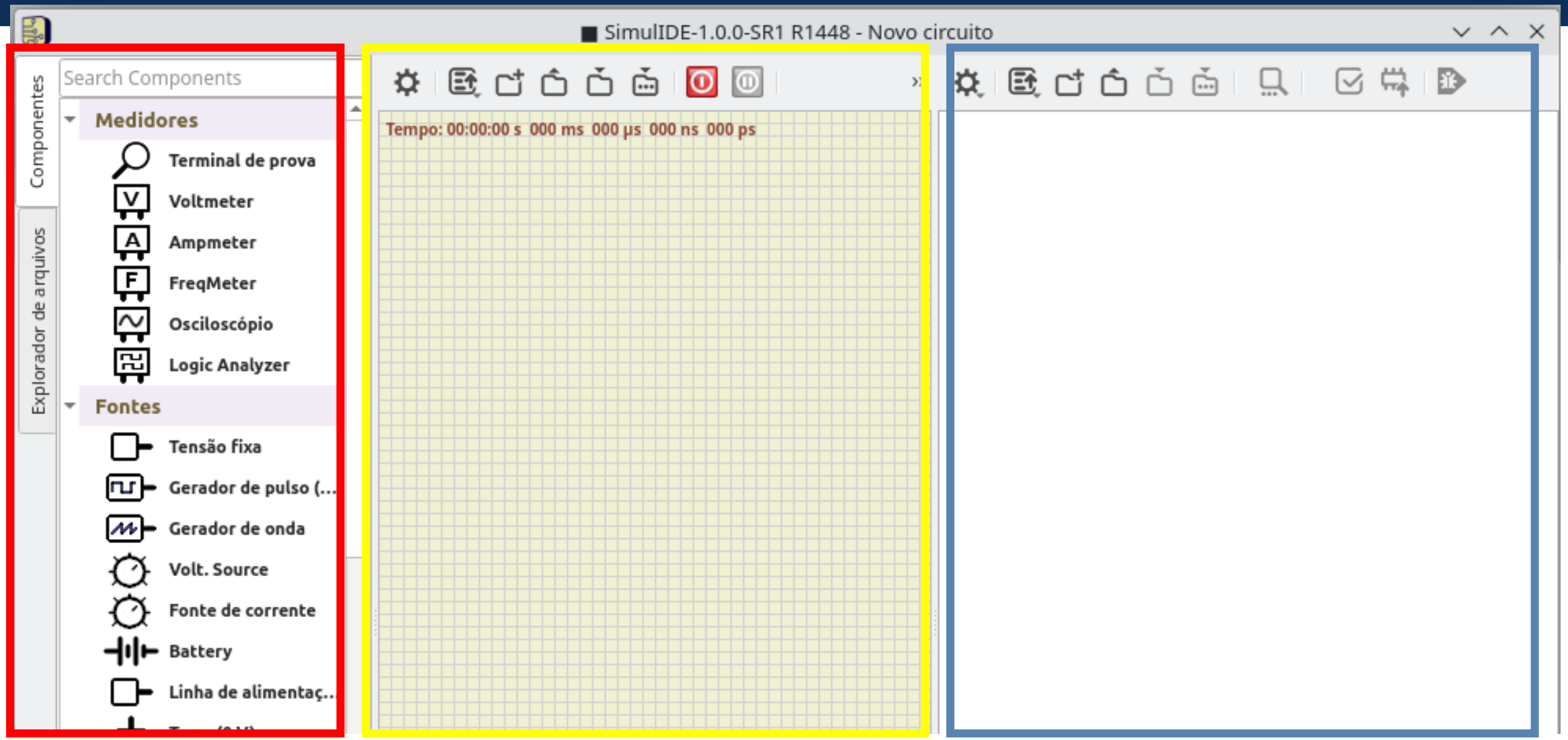
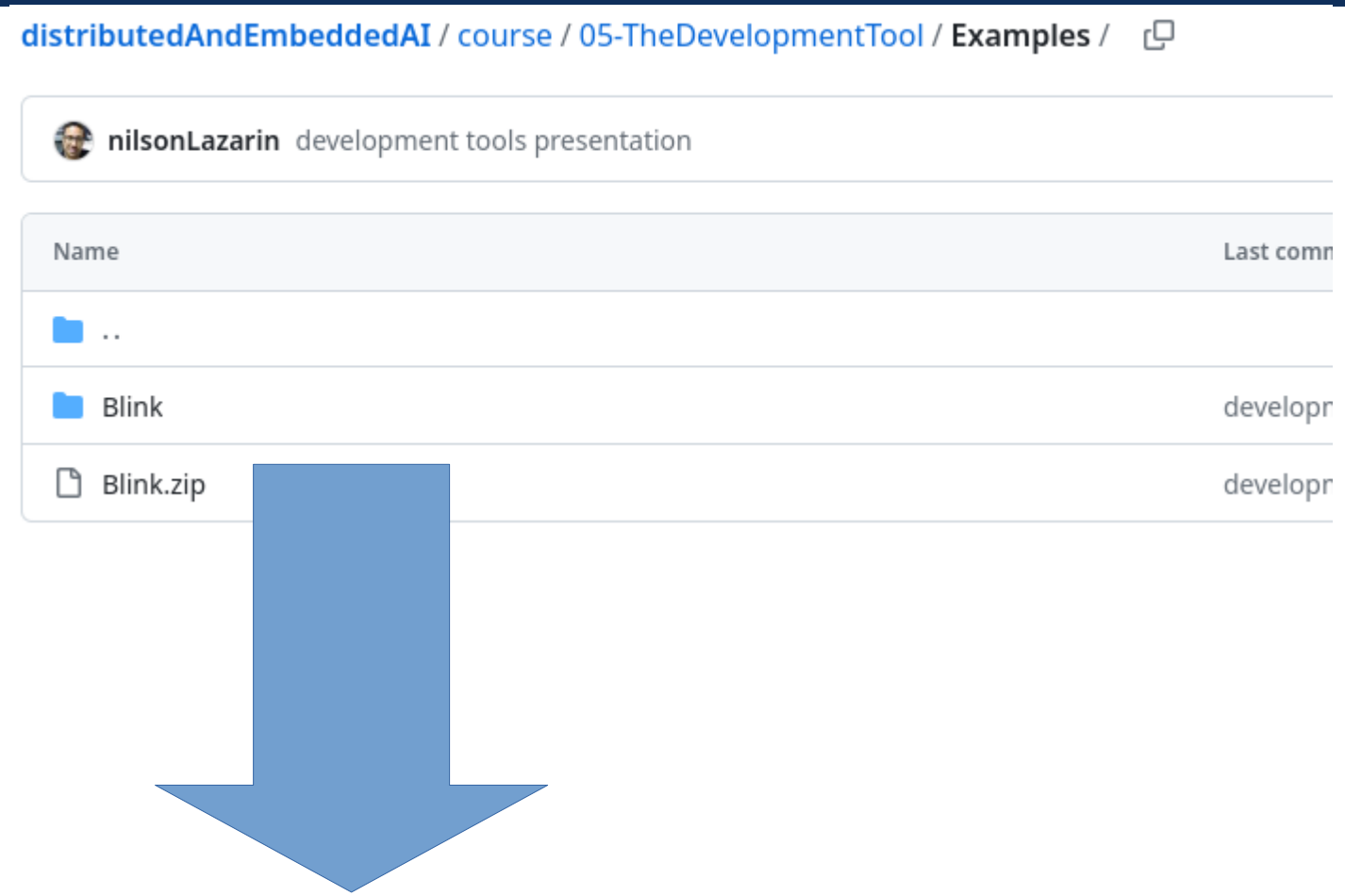
SimulIDE



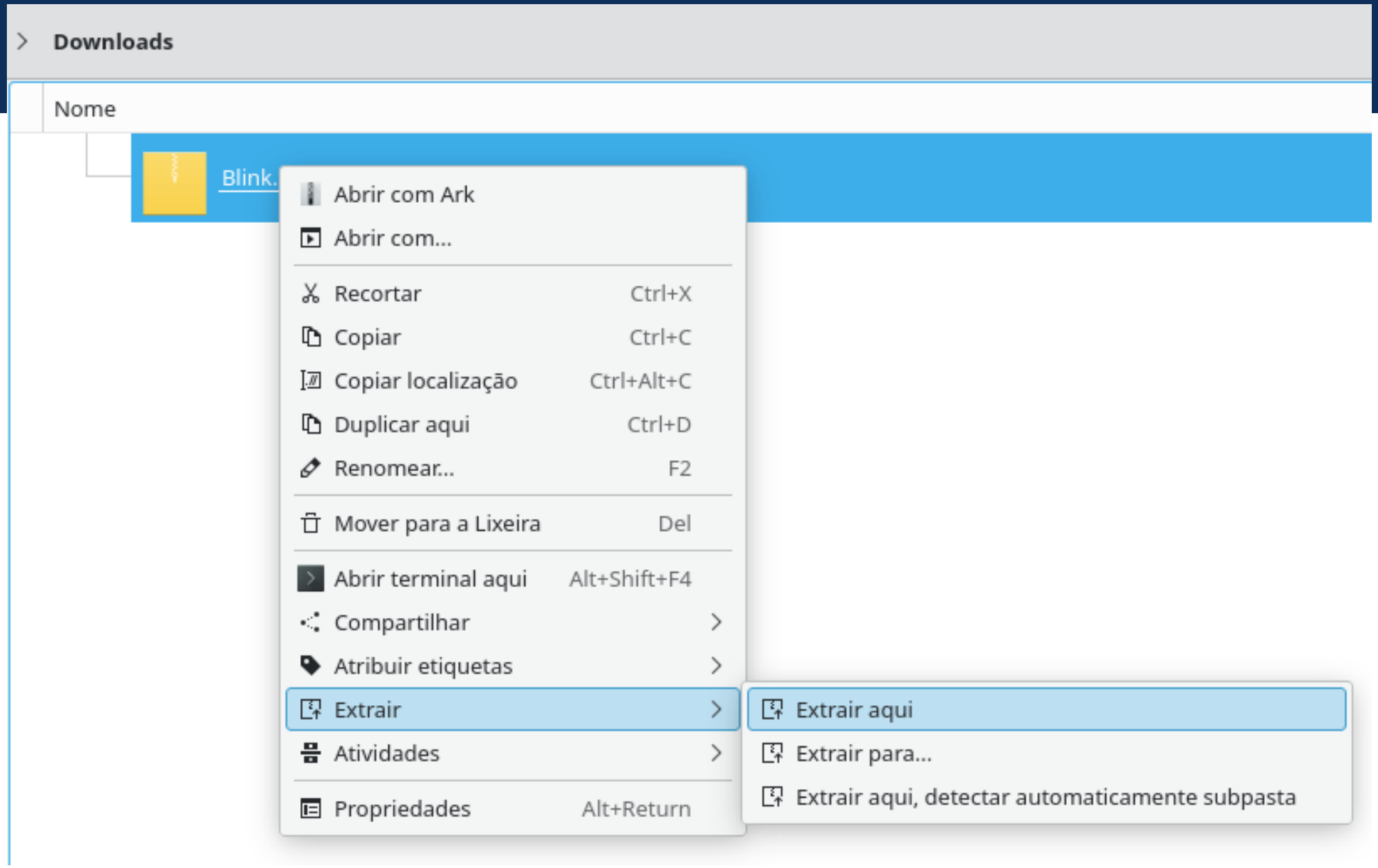
Manual de instalação
https://github.com/chon-group/dpkg-simulide

SimulIDE

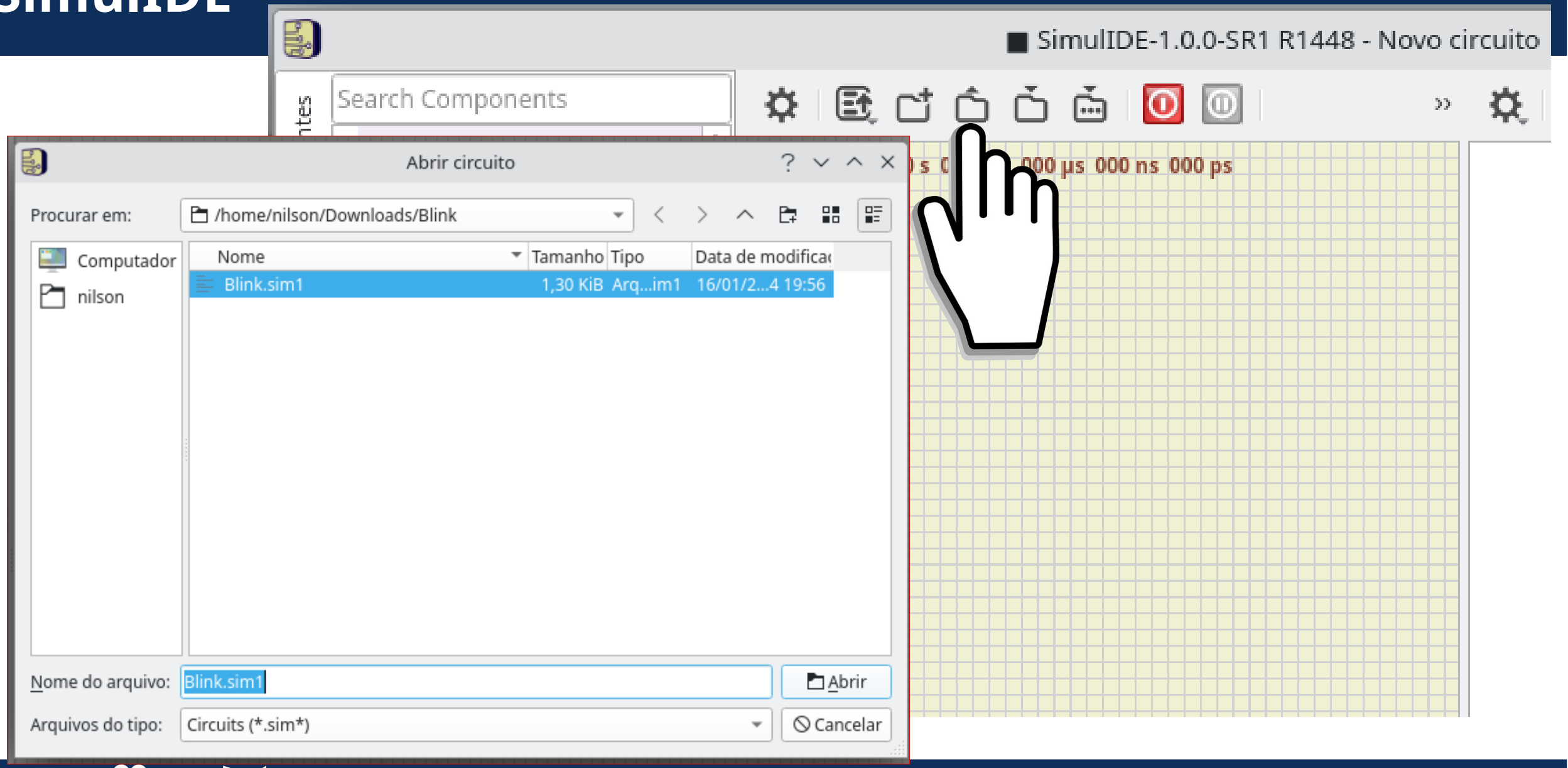

SimulIDE-1.0.0-SR1 R1448 - Novo circuito
Componentes
Explorador de arquivos
Search Components
Medidores
Terminal de prova
Voltmeter
Ampmeter
FreqMeter
Osciloscópio
Logic Analyzer
Fontes
Tensão fixa
Gerador de pulso (...
Gerador de onda
Volt. Source
Fonte de corrente
Battery
Linha de alimentaç...
Tempo: 00:00:00 s 000 ms 000 µs 000 ns 000 ps



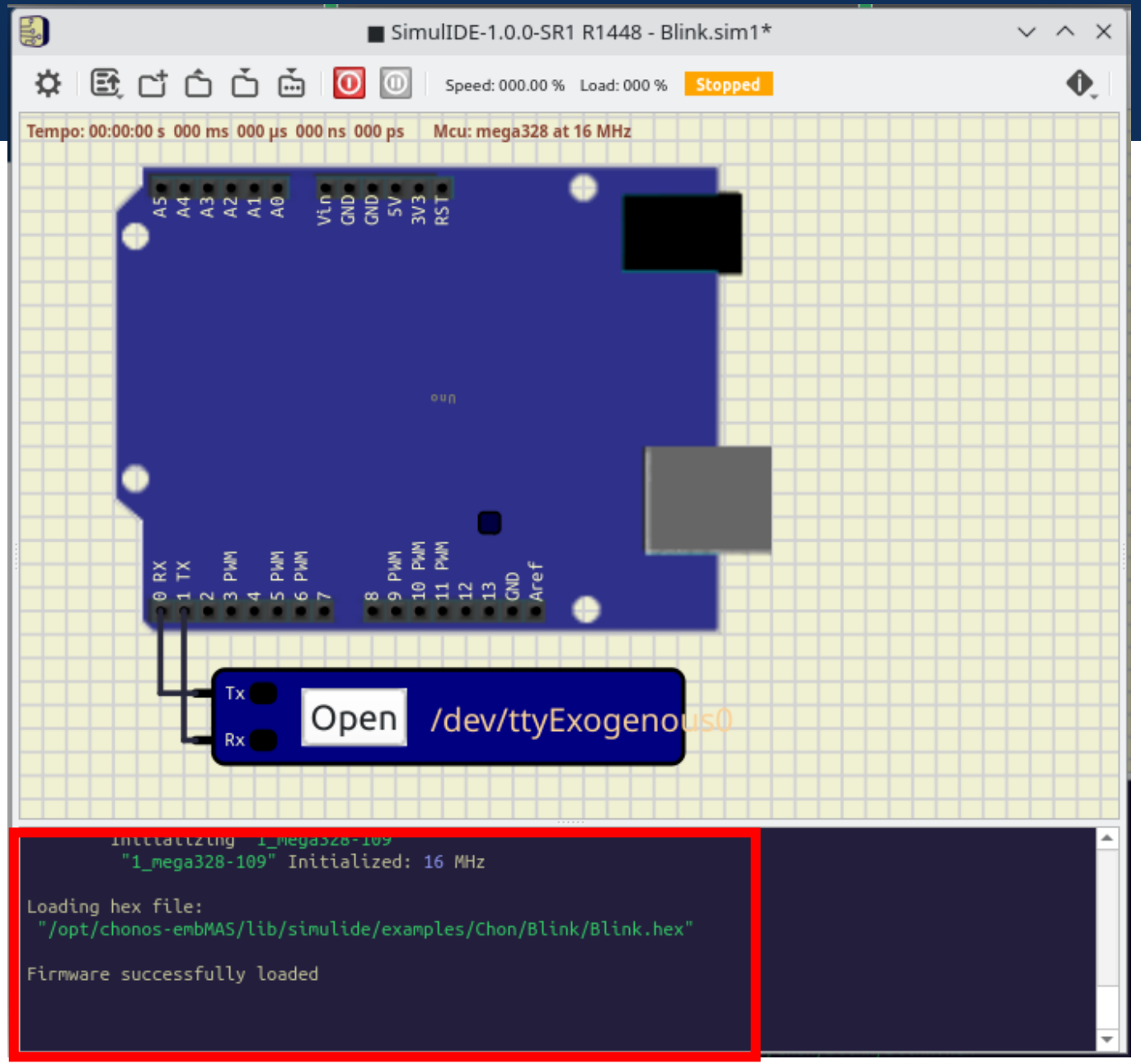
https://github.com/chon-group/distributedAndEmbeddedAI/raw/main/course/05-TheDevelopmentTool/Examples/Blink.zip


Downloads
Nome
Blink.
Abrir com Ark
Abrir com...
Recortar Ctrl+X
Copiar Ctrl+C
Copiar localização Ctrl+Alt+C
Duplicar aqui Ctrl+D
Renomear... F2
Mover para a Lixeira Del
Abrir terminal aqui Alt+Shift+F4
Compartilhar
Atribuir etiquetas
Extrair
Atividades
Propriedades Alt+Return
Extrair aqui
Extrair para...
Extrair aqui, detectar automaticamente subpasta

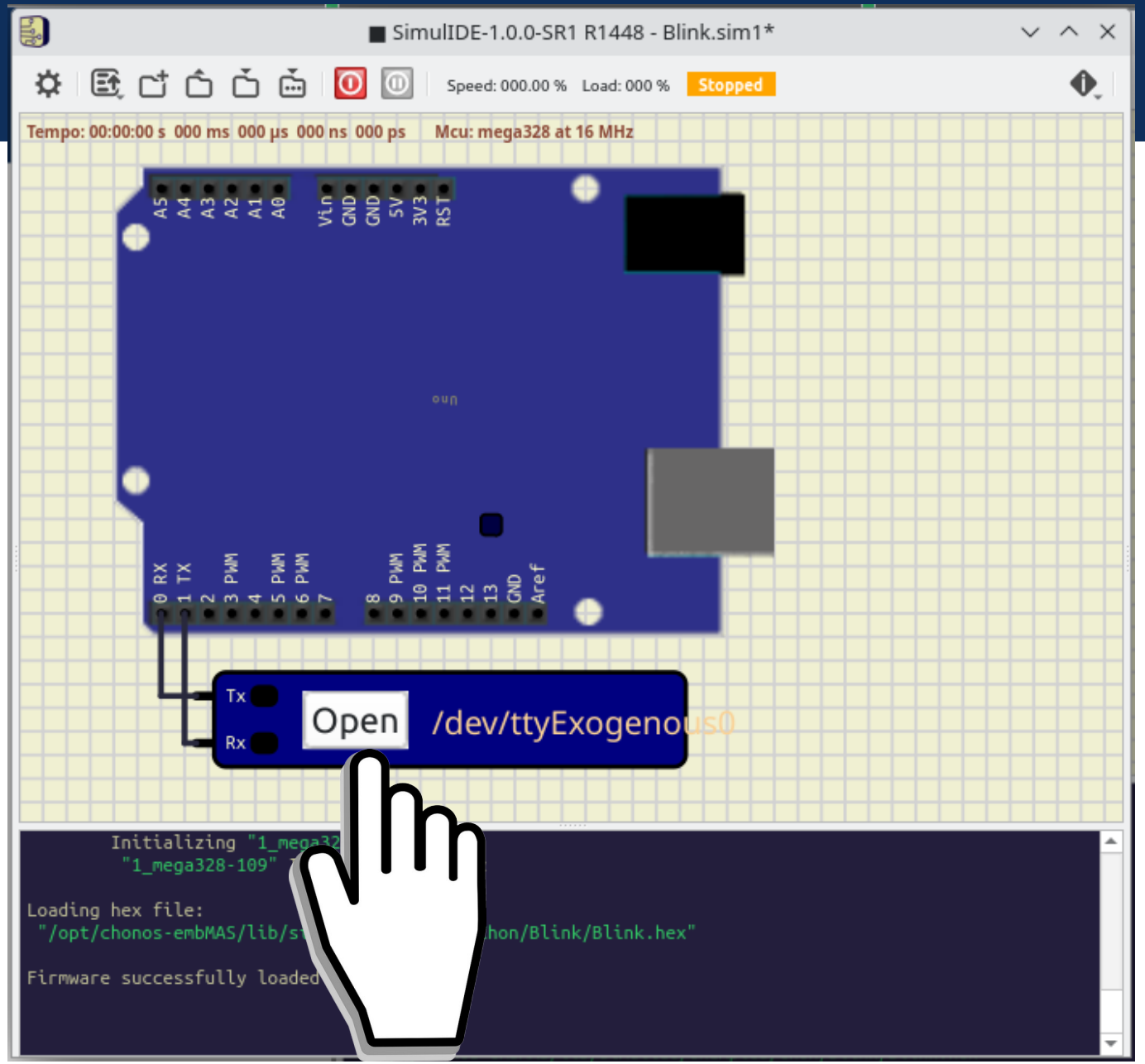
SimulIDE


SimulIDE-1.0.0-SR1 R1448 - Novo circuito
Search Components
Abrir circuito
Procurar em:
/home/nilson/Downloads/Blink
Computador
nilson
Nome
Tamanho
Tipo
Data de modifica
Blink.sim1
1,30 KiB
Arq...im1
16/01/2...4 19:56
Nome do arquivo:
Blink.sim1
Abrir
Arquivos do tipo:
Circuits (*.sim*)
Cancelar
000 µs 000 ns 000 ps

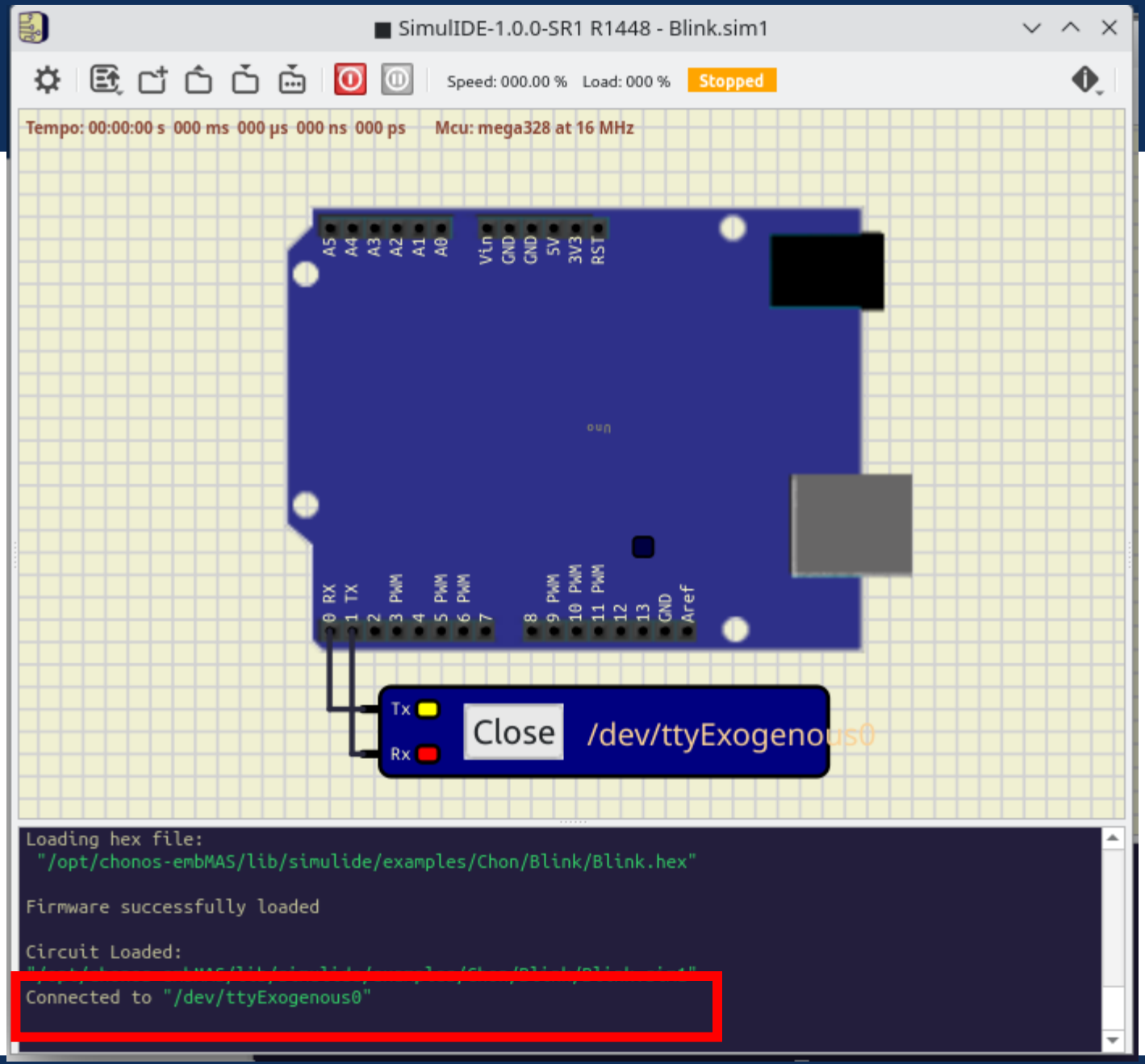
SimulIDE


SimulIDE-1.0.0-SR1 R1448 - Blink.sim1*
Speed: 000.00 %
Load: 000 %
Stopped
Tempo: 00:00:00 s 000 ms 000 µs 000 ns 000 ps
Mcu: mega328 at 16 MHz
A5 A4 A3 A2 A1 A0
Vin GND GND 5V 3V3 RST
0 RX 1 TX 2 3 PWM 4 5 PWM 6 PWM 7
8 9 PWM 10 PWM 11 PWM 12 13 GND Aref
Tx
Rx
Open
/dev/ttyExogenous0
"1_mega328-109" Initialized: 16 MHz
Loading hex file:
"/opt/chonos-embMAS/lib/simulide/examples/Chon/Blink/Blink.hex"
Firmware successfully loaded

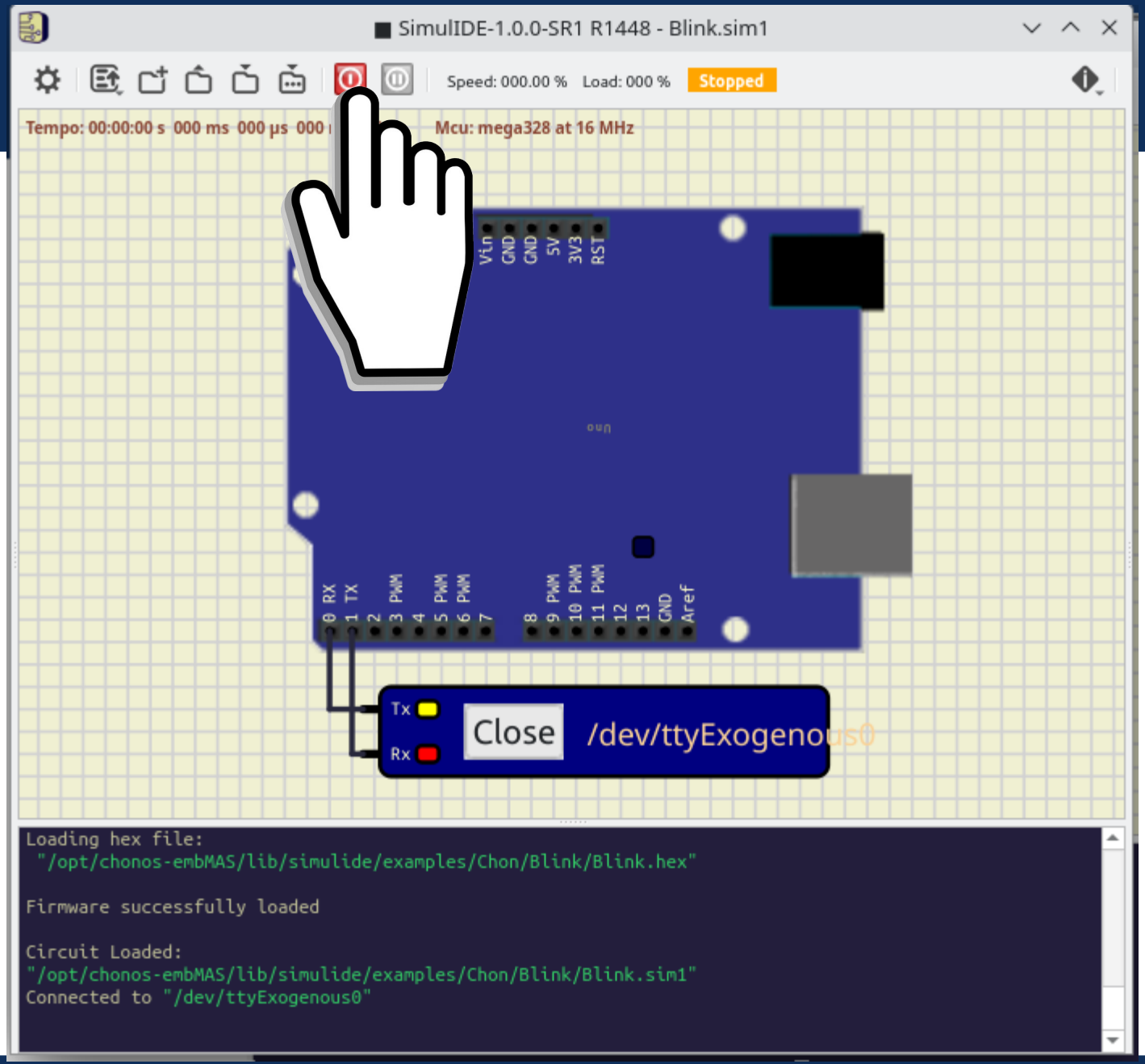
SimulIDE


SimulIDE-1.0.0-SR1 R1448 - Blink.sim1*
Speed: 000.00 %
Load: 000 %
Stopped
Tempo: 00:00:00 s 000 ms 000 µs 000 ns 000 ps
Mcu: mega328 at 16 MHz
A5 A4 A3 A2 A1 A0
Vin GND GND 5V 3V3 RST
0 RX 1 TX 2 3 PWM 4 5 PWM 6 PWM 7
8 9 PWM 10 PWM 11 PWM 12 13 GND Aref
Tx
Rx
Open
/dev/ttyExogenous0
Initializing "1_mega32
"1_mega328-109"
Loading hex file:
"/opt/chonos-embMAS/lib/s
hon/Blink/Blink.hex"
Firmware successfully loaded

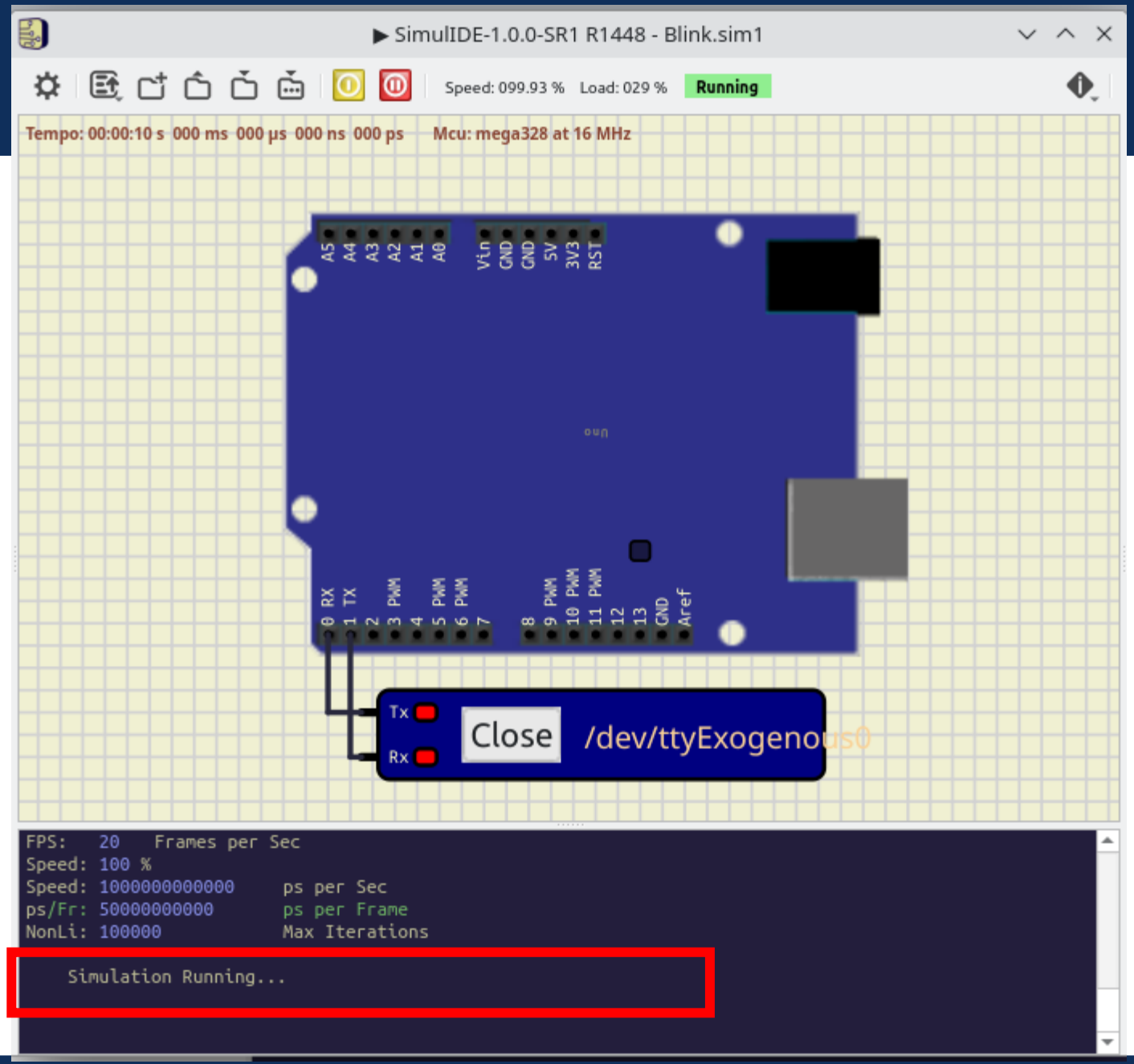
SimulIDE

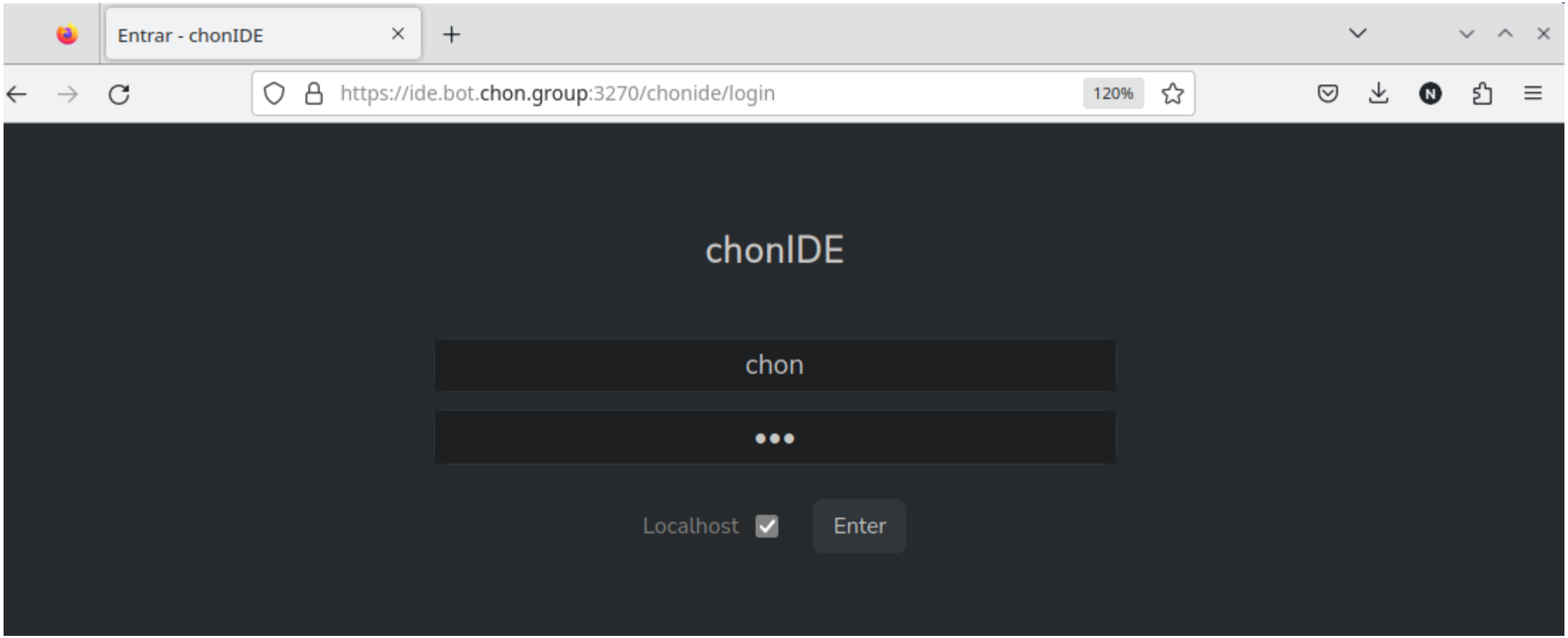

SimulIDE-1.0.0-SR1 R1448 - Blink.sim1
Speed: 000.00 %
Load: 000 %
Stopped
Tempo: 00:00:00 s 000 ms 000 µs 000 ns 000 ps
Mcu: mega328 at 16 MHz
A5 A4 A3 A2 A1 A0
Vin GND GND 5V 3V3 RST
0 RX 1 TX 2 3 PWM 4 5 PWM 6 PWM 7
8 9 PWM 10 PWM 11 PWM 12 13 GND Aref
Tx
Rx
Close
/dev/ttyExogenous0
Loading hex file:
"/opt/chonos-embMAS/lib/simulide/examples/Chon/Blink/Blink.hex"
Firmware successfully loaded
Circuit Loaded:
Connected to "/dev/ttyExogenous0"

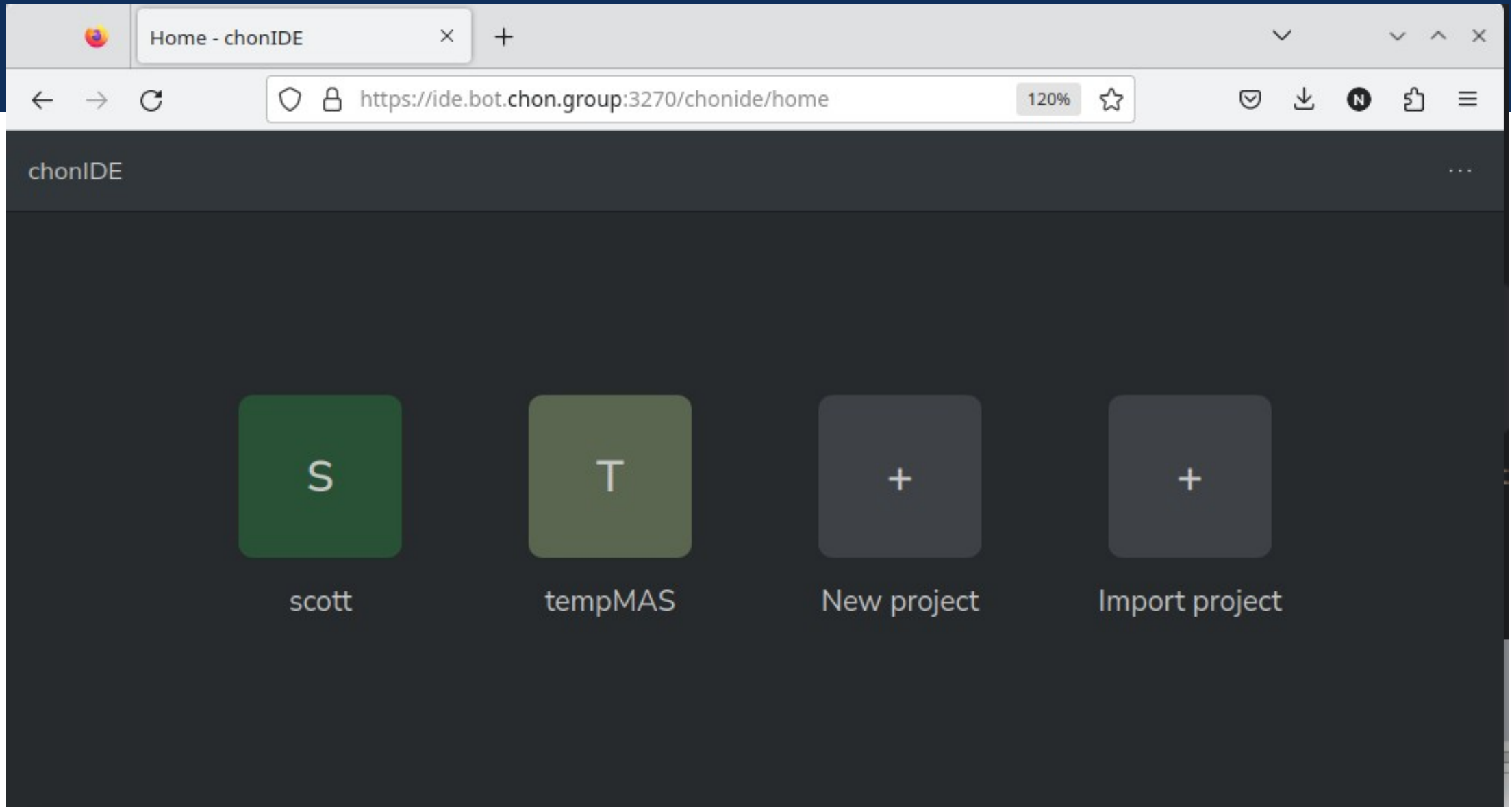
SimulIDE


SimulIDE-1.0.0-SR1 R1448 - Blink.sim1
Speed: 000.00 %
Load: 000 %
Stopped
Tempo: 00:00:00 s 000 ms 000 µs 000
Mcu: mega328 at 16 MHz
Vin
GND
GND
5V
3V3
RST
0 RX
1 TX
2
3 PWM
4
5 PWM
6 PWM
7
8
9 PWM
10 PWM
11 PWM
12
13
GND
Aref
Tx
Rx
Close
/dev/ttyExogenous0
Loading hex file:
"/opt/chonos-embMAS/lib/simulide/examples/Chon/Blink/Blink.hex"
Firmware successfully loaded
Circuit Loaded:
"/opt/chonos-embMAS/lib/simulide/examples/Chon/Blink/Blink.sim1"
Connected to "/dev/ttyExogenous0"

SimulIDE


SimulIDE-1.0.0-SR1 R1448 - Blink.sim1
Speed: 099.93 %
Load: 029 %
Running
Tempo: 00:00:10 s 000 ms 000 µs 000 ns 000 ps
Mcu: mega328 at 16 MHz
A5 A4 A3 A2 A1 A0
Vin GND GND 5V 3V3 RST
0 RX
1 TX
2
3 PWM
4
5 PWM
6 PWM
7
8
9 PWM
10 PWM
11 PWM
12
13
GND
Aref
Tx
Rx
Close
/dev/ttyExogenous0
FPS: 20 Frames per Sec
Speed: 100 %
Speed: 1000000000000 ps per Sec
ps/Fr: 50000000000 ps per Frame
NonLi: 100000 Max Iterations
Simulation Running...


Entrar - chonIDE
https://ide.bot.chon.group:3270/chonide/login
120%
chonIDE
chon
Localhost
Enter


Home - chonIDE
https://ide.bot.chon.group:3270/chonide/home
120%
chonIDE
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T
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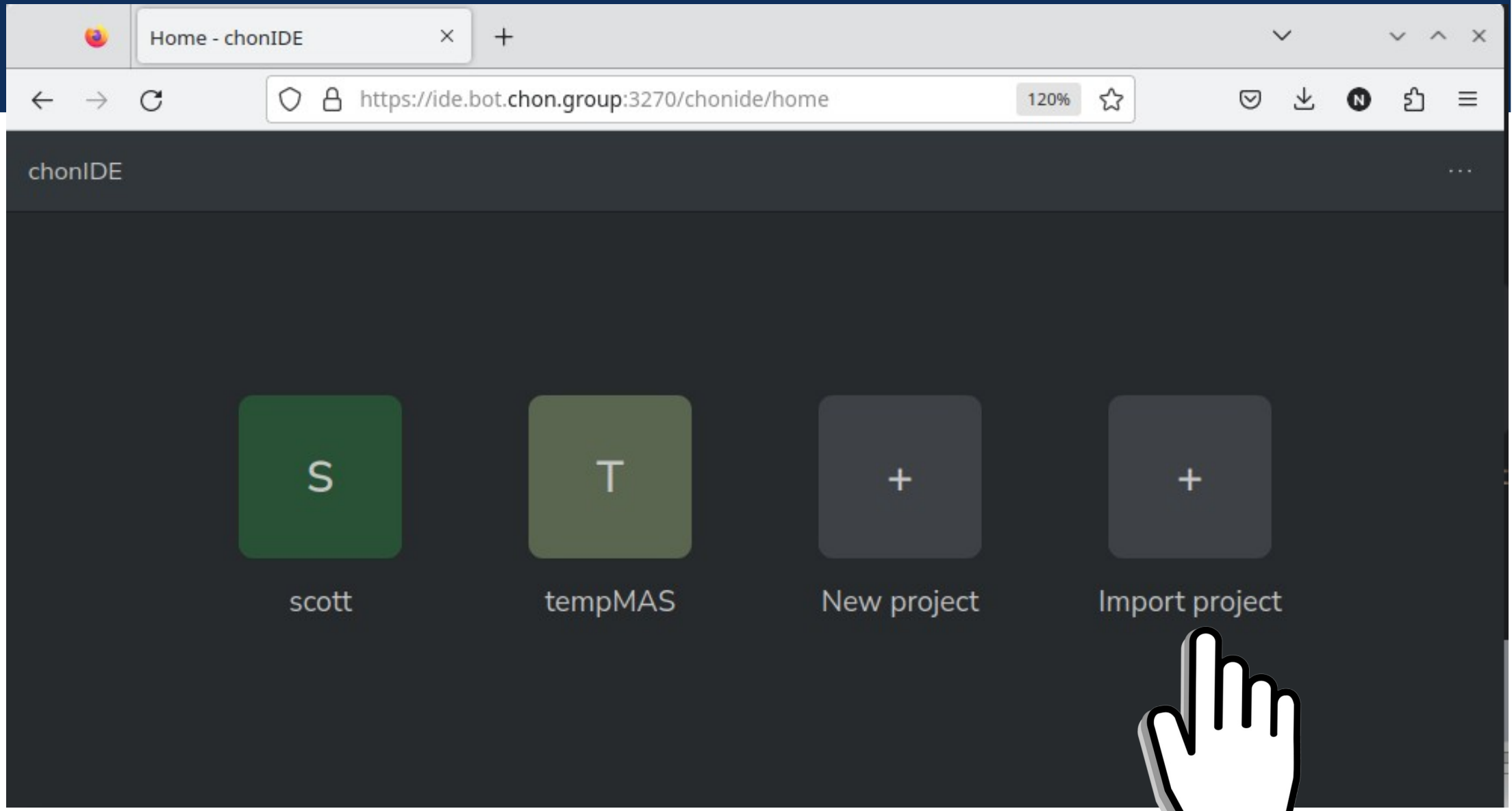
scott
tempMAS
New project
Import project


Home - chonIDE
https://ide.bot.chon.group:3270/chonide/home
120%
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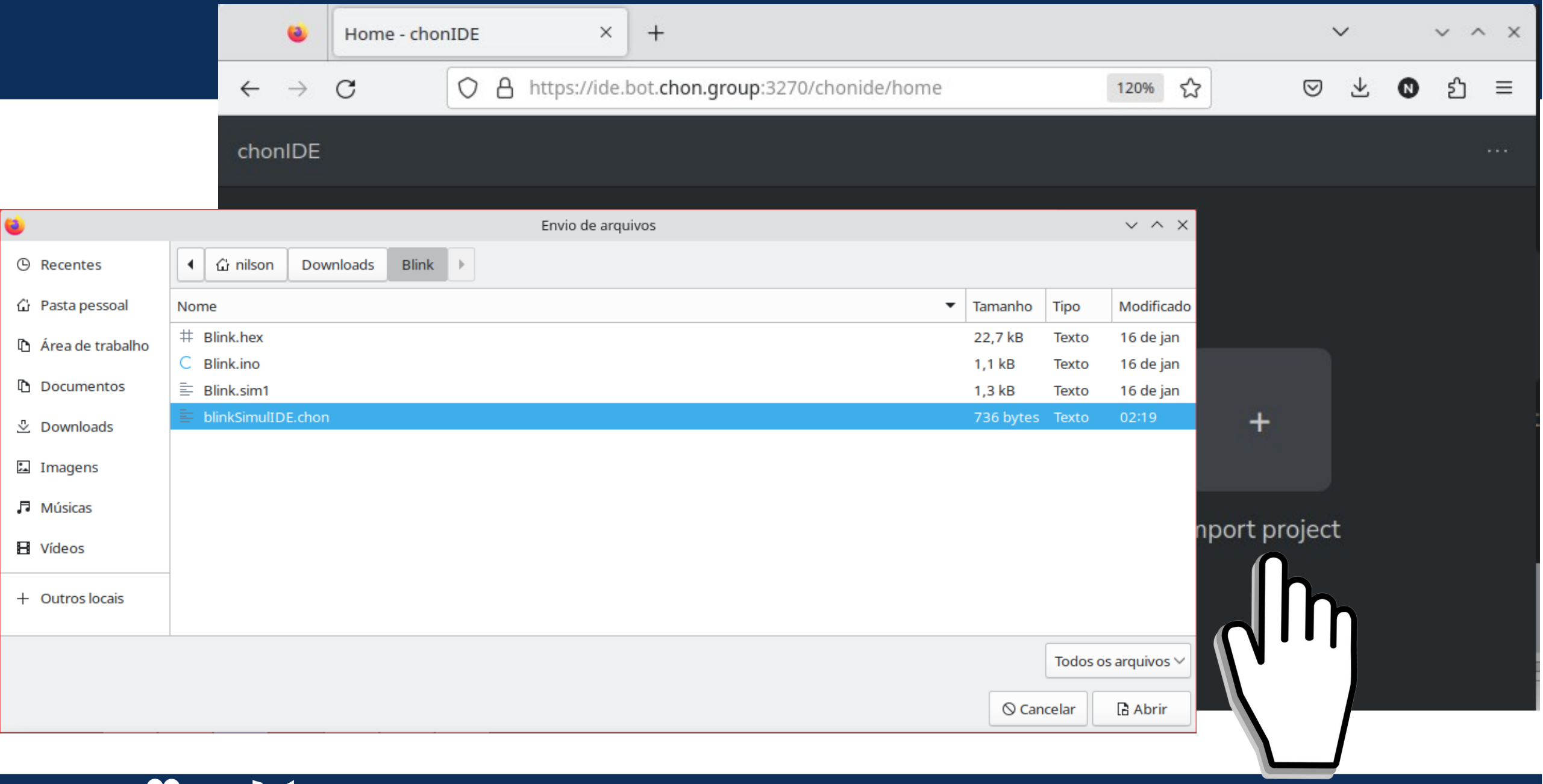
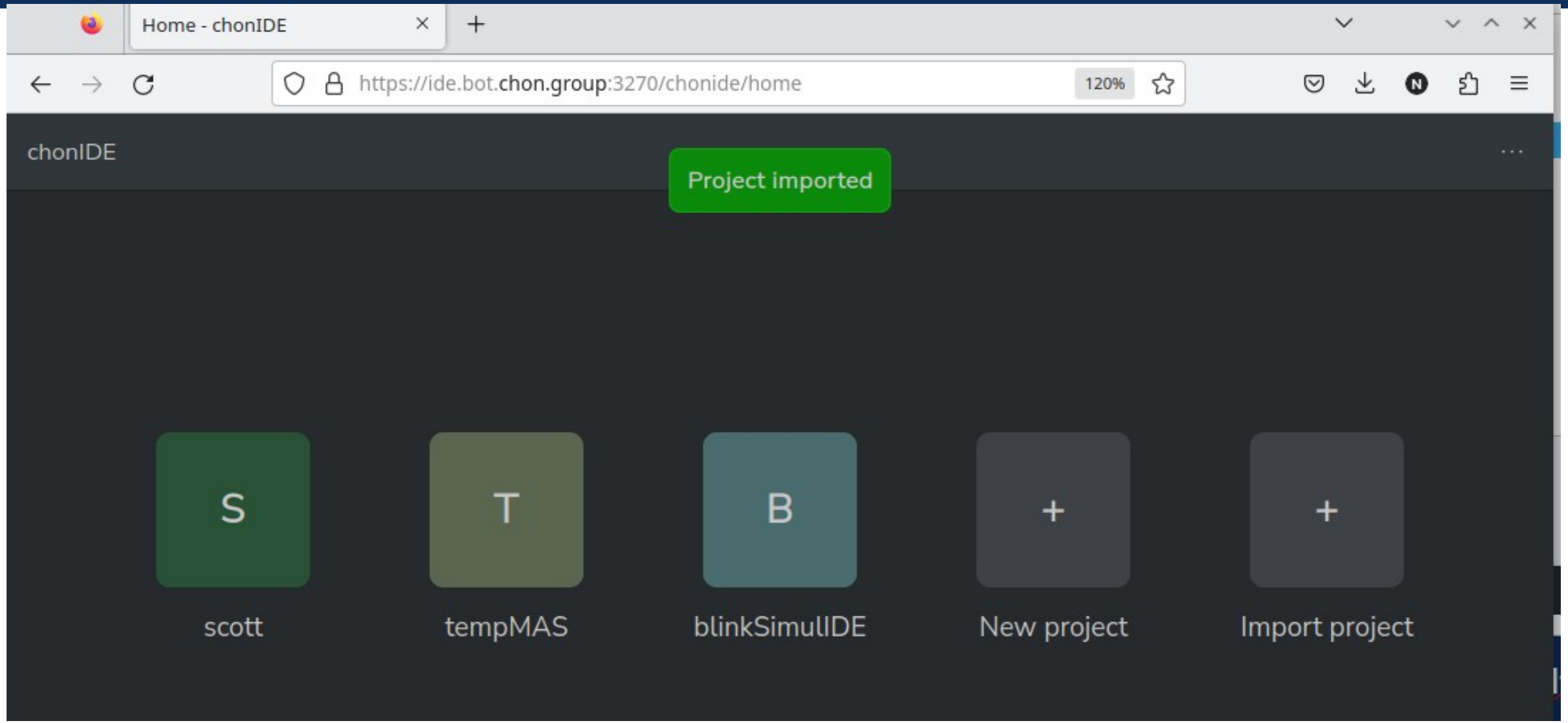
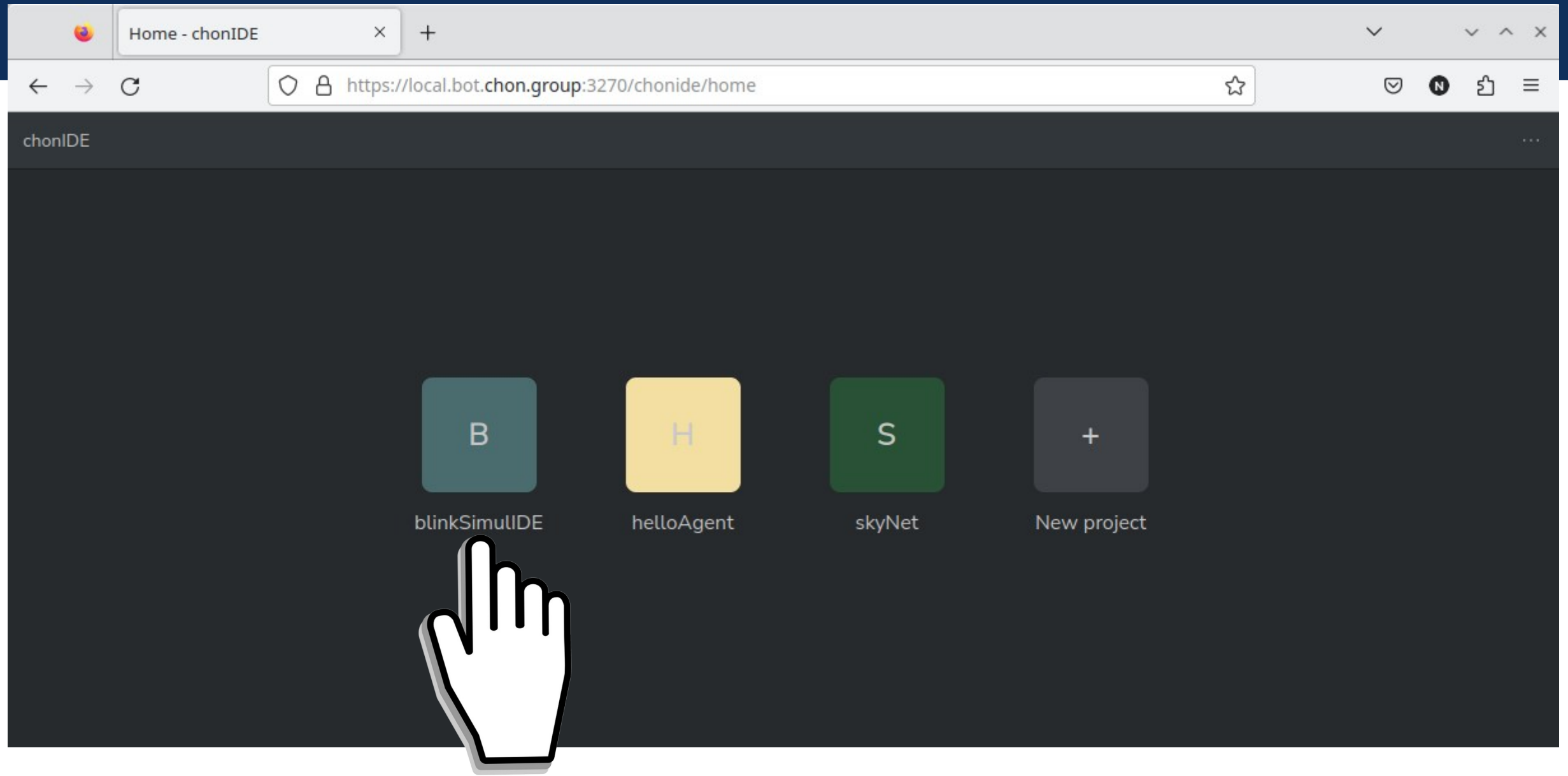
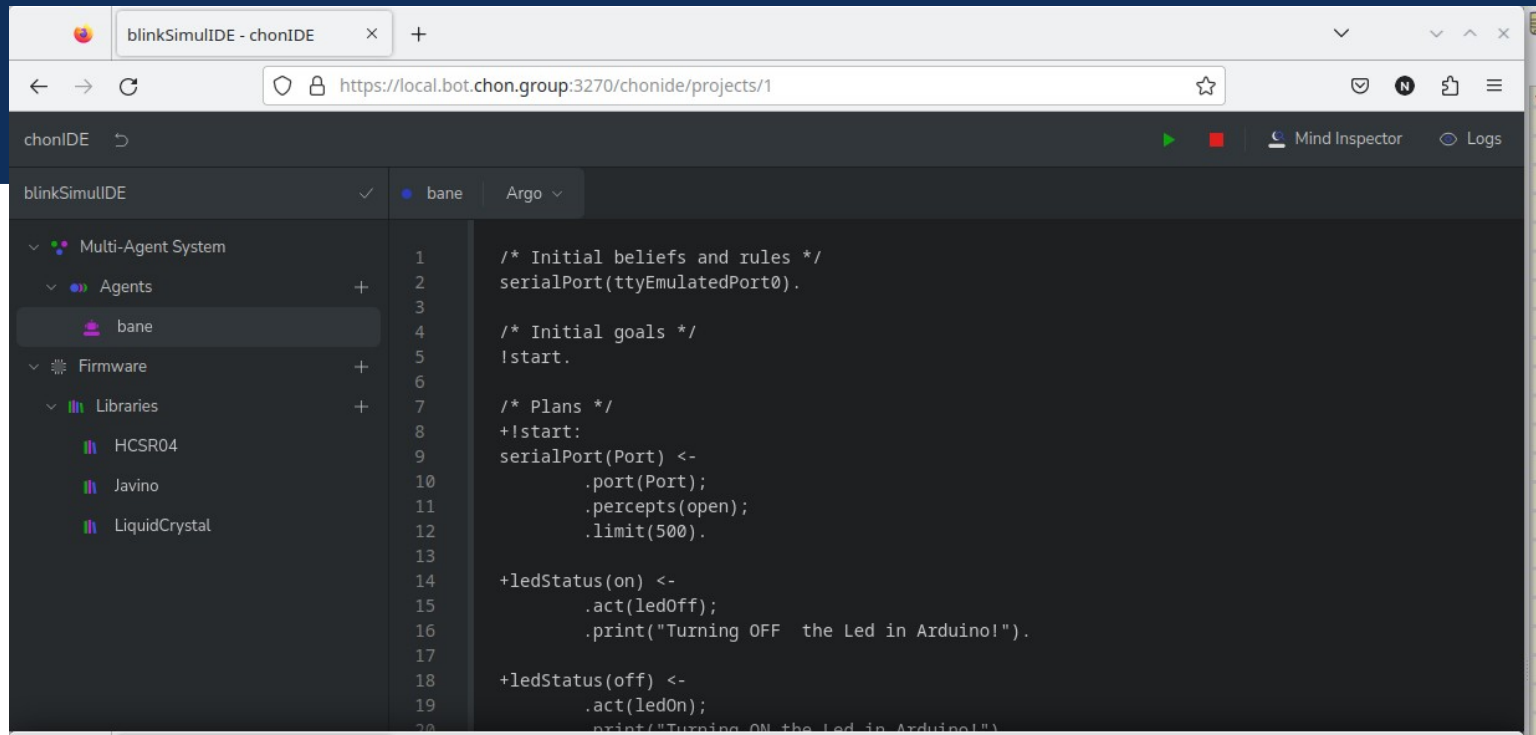
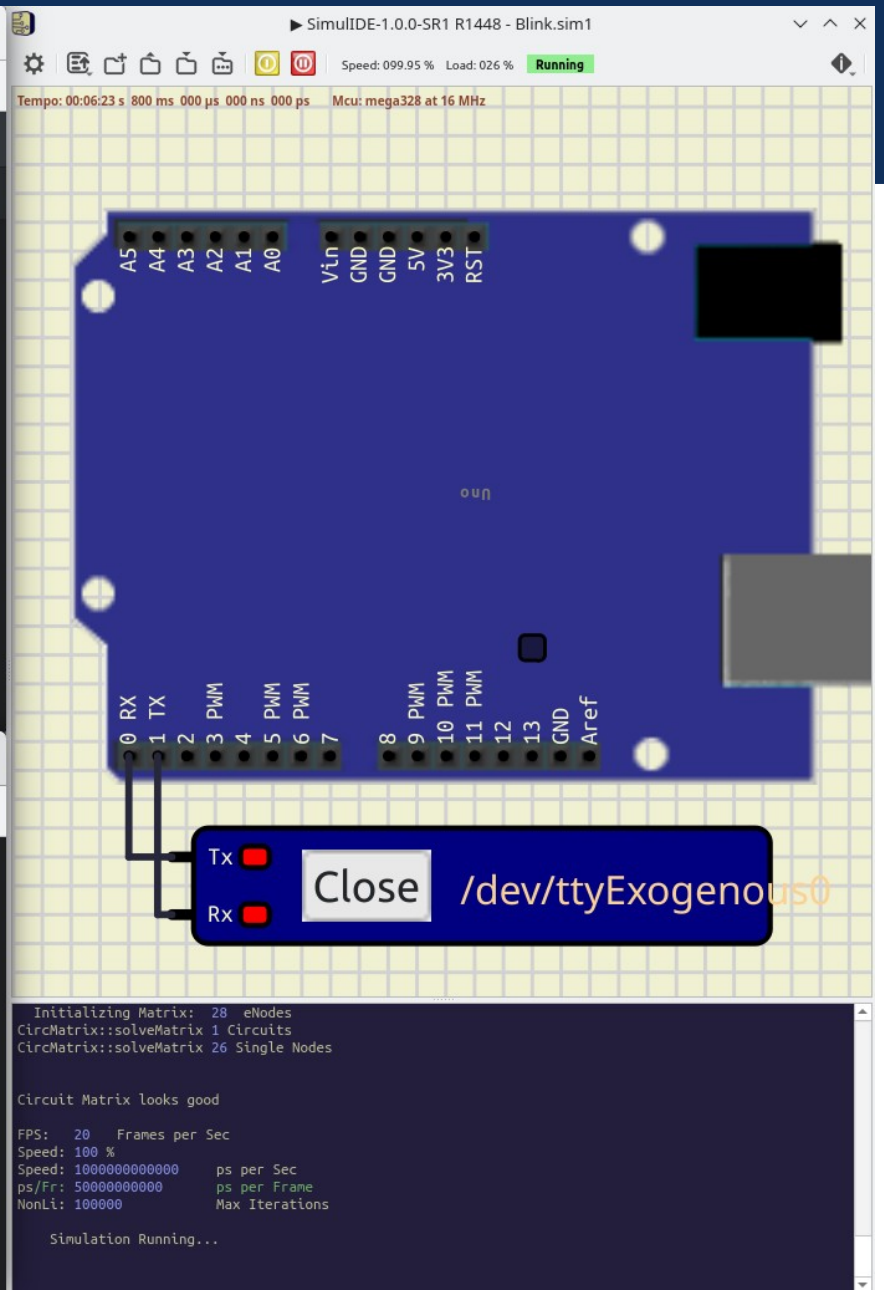
tempMAS
New project
Import project

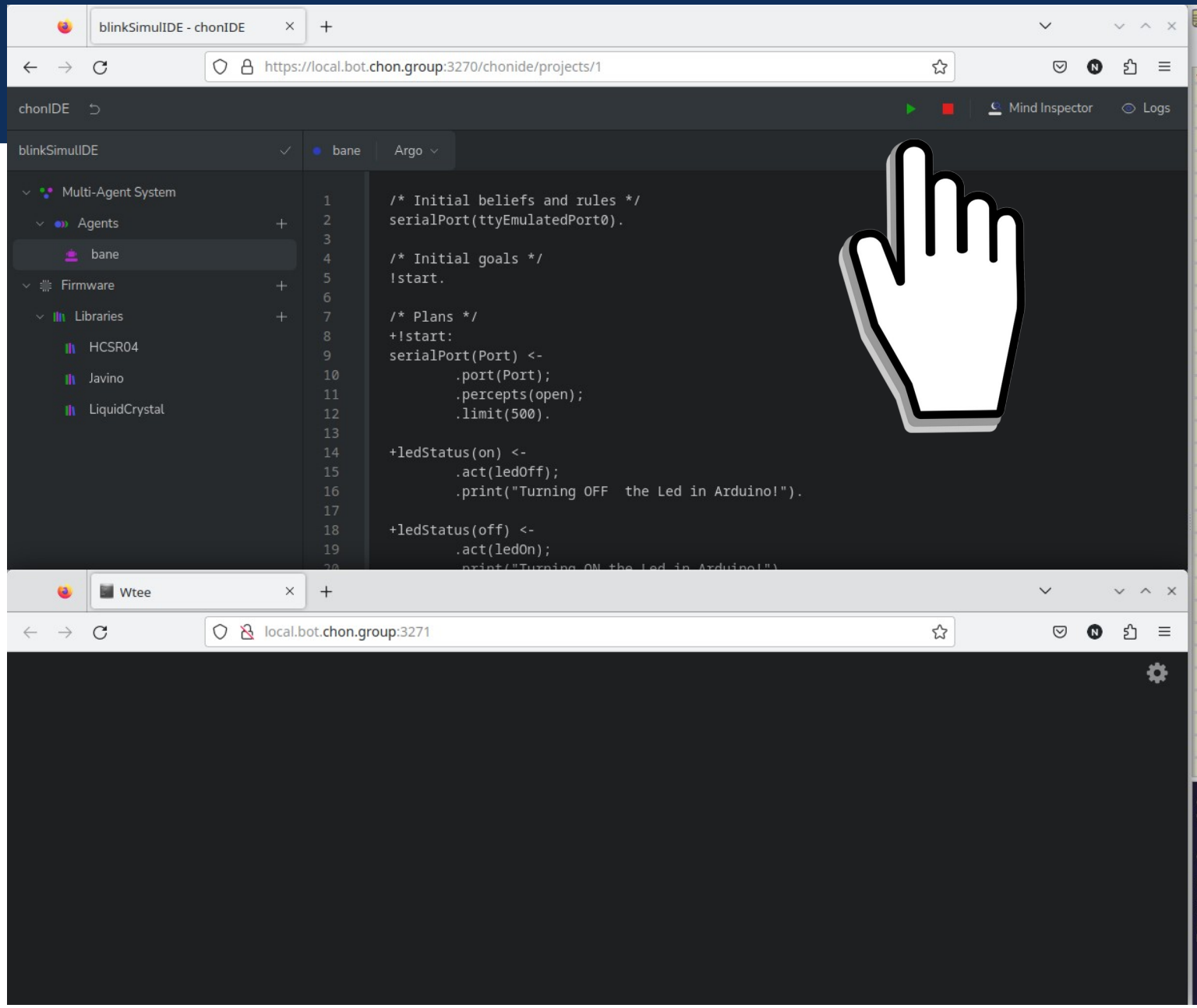

Home - chonIDE
https://ide.bot.chon.group:3270/chonide/home
120%
chonIDE
Envio de arquivos
Recentes
Pasta pessoal
Área de trabalho
Documentos
Downloads
Imagens
Músicas
Vídeos
Outros locais
nilson
Downloads
Blink
Nome
Tamanho
Tipo
Modificado
Blink.hex
22,7 kB
Texto
16 de jan
Blink.ino
1,1 kB
Texto
16 de jan
Blink.sim1
1,3 kB
Texto
16 de jan
blinkSimulIDE.chon
736 bytes
Texto
02:19
Todos os arquivos
Cancelar
Abrir
nport project

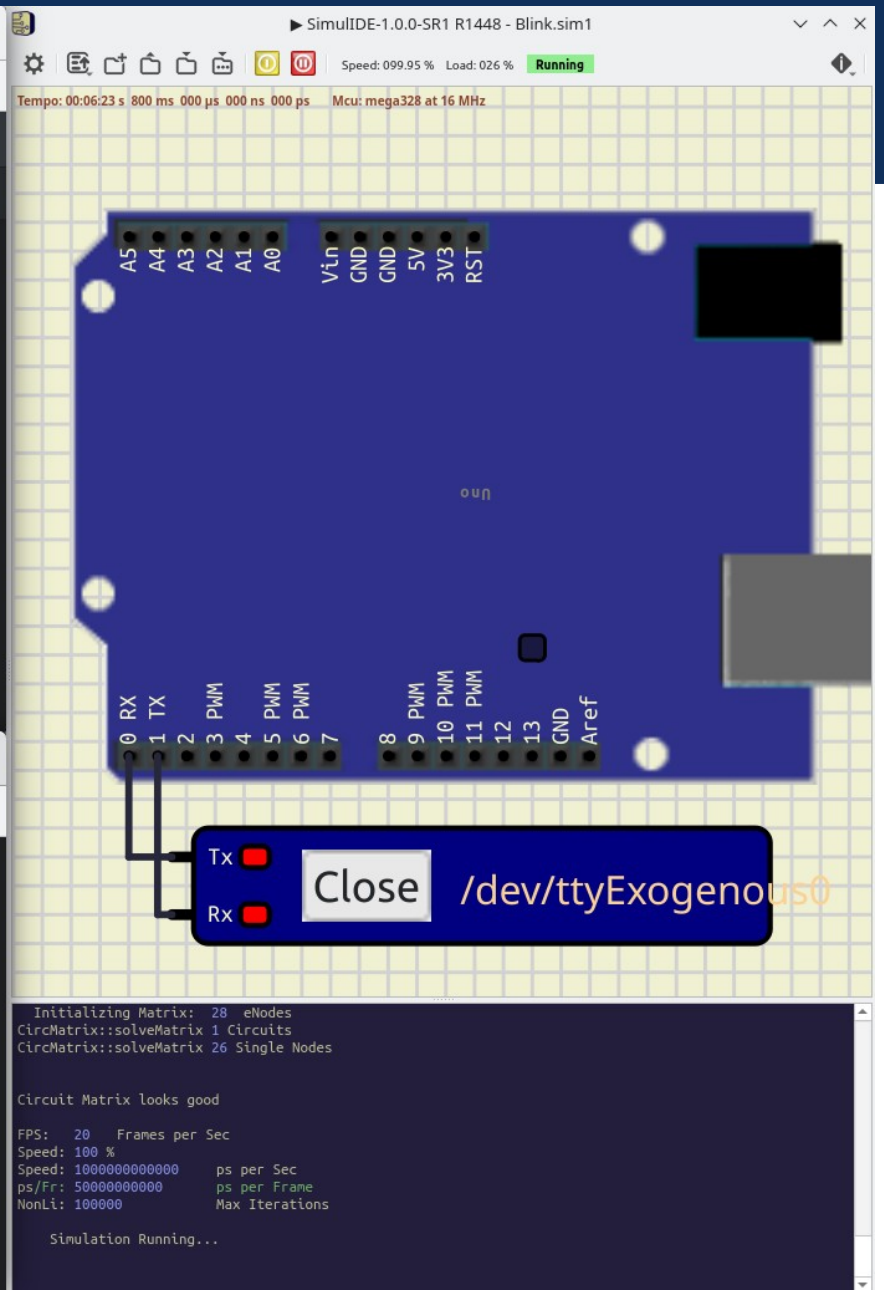

Home - chonIDE
https://ide.bot.chon.group:3270/chonide/home
120%
chonIDE
Project imported
S
T
B
+
+
scott
tempMAS
blinkSimulIDE
New project
Import project


Home - chonIDE
https://local.bot.chon.group:3270/chonide/home
chonIDE
B
H
S
+
blinkSimulIDE
helloAgent
skyNet
New project


blinkSimulIDE - chonIDE
https://local.bot.chon.group:3270/chonide/projects/1
chonIDE
Mind Inspector
Logs
blinkSimulIDE
bane
Argo
Multi-Agent System
Agents
bane
Firmware
Libraries
HCSR04
Javino
LiquidCrystal
/* Initial beliefs and rules */
serialPort(ttyEmulatedPort0).
/* Initial goals */
!start.
/* Plans */
+!start:
serialPort(Port) <-
.port(Port);
.percepts(open);
.limit(500).
+ledStatus(on) <-
.act(ledOff);
.print("Turning OFF the Led in Arduino!").
+ledStatus(off) <-
.act(ledOn);
Wtee
local.bot.chon.group:3271


SimulIDE-1.0.0-SR1 R1448 - Blink.sim1
Speed: 099.95 % Load: 026 % Running
Tempo: 00:06:23 s 800 ms 000 µs 000 ns 000 ps Mcu: mega328 at 16 MHz
A5 A4 A3 A2 A1 A0 Vin GND GND 5V 3V3 RST
0 RX 1 TX 2 3 PWM 4 5 PWM 6 PWM 7 8 9 PWM 10 PWM 11 PWM 12 13 GND Aref
Tx
Rx
Close
/dev/ttyExogenous0
Initializing Matrix: 28 eNodes
CircMatrix::solveMatrix 1 Circuits
CircMatrix::solveMatrix 26 Single Nodes
Circuit Matrix looks good
FPS: 20 Frames per Sec
Speed: 100 %
Speed: 1000000000000 ps per Sec
ps/Fr: 50000000000 ps per Frame
NonLi: 100000 Max Iterations
Simulation Running...


blinkSimulIDE - chonIDE
https://local.bot.chon.group:3270/chonide/projects/1
chonIDE
Mind Inspector
Logs
blinkSimulIDE
bane
Argo
Multi-Agent System
Agents
bane
Firmware
Libraries
HCSR04
Javino
LiquidCrystal
/* Initial beliefs and rules */
serialPort(ttyEmulatedPort0).
/* Initial goals */
!start.
/* Plans */
+!start:
serialPort(Port) <-
.port(Port);
.percepts(open);
.limit(500).
+ledStatus(on) <-
.act(ledOff);
.print("Turning OFF the Led in Arduino!").
+ledStatus(off) <-
.act(ledOn);
Wtee
local.bot.chon.group:3271


SimulIDE-1.0.0-SR1 R1448 - Blink.sim1
Speed: 099.95 % Load: 026 % Running
Tempo: 00:06:23 s 800 ms 000 µs 000 ns 000 ps Mcu: mega328 at 16 MHz
A5 A4 A3 A2 A1 A0 Vin GND GND 5V 3V3 RST
0 RX 1 TX 2 3 PWM 4 5 PWM 6 PWM 7 8 9 PWM 10 PWM 11 PWM 12 13 GND Aref
Tx
Rx
Close
/dev/ttyExogenous0
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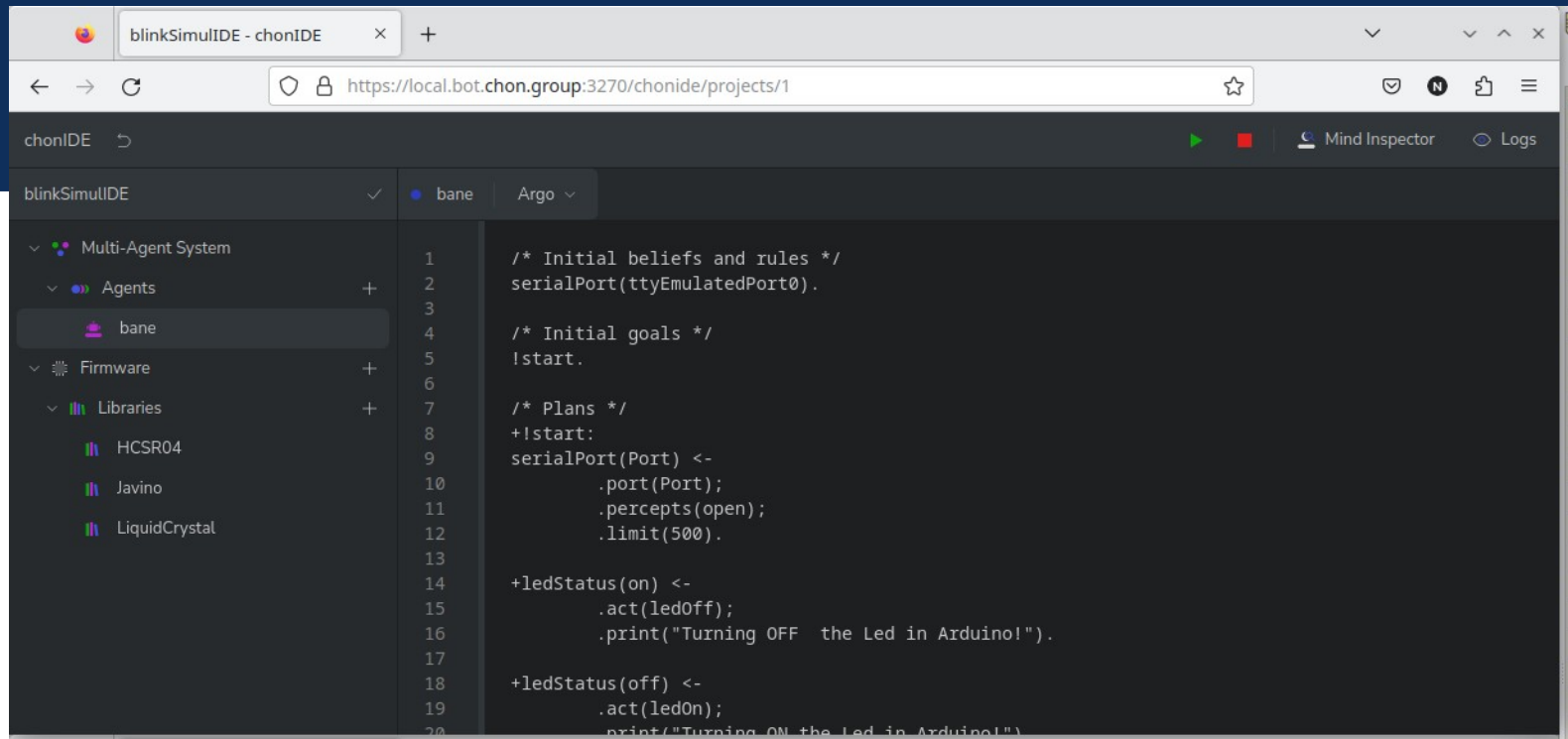
CircMatrix::solveMatrix 1 Circuits
CircMatrix::solveMatrix 26 Single Nodes
Circuit Matrix looks good
FPS: 20 Frames per Sec
Speed: 100 %
Speed: 1000000000000 ps per Sec
ps/Fr: 50000000000 ps per Frame
NonLi: 100000 Max Iterations
Simulation Running...


blinkSimulIDE - chonIDE
https://local.bot.chon.group:3270/chonide/projects/1
chonIDE
Mind Inspector
Logs
blinkSimulIDE
bane
Argo
Multi-Agent System
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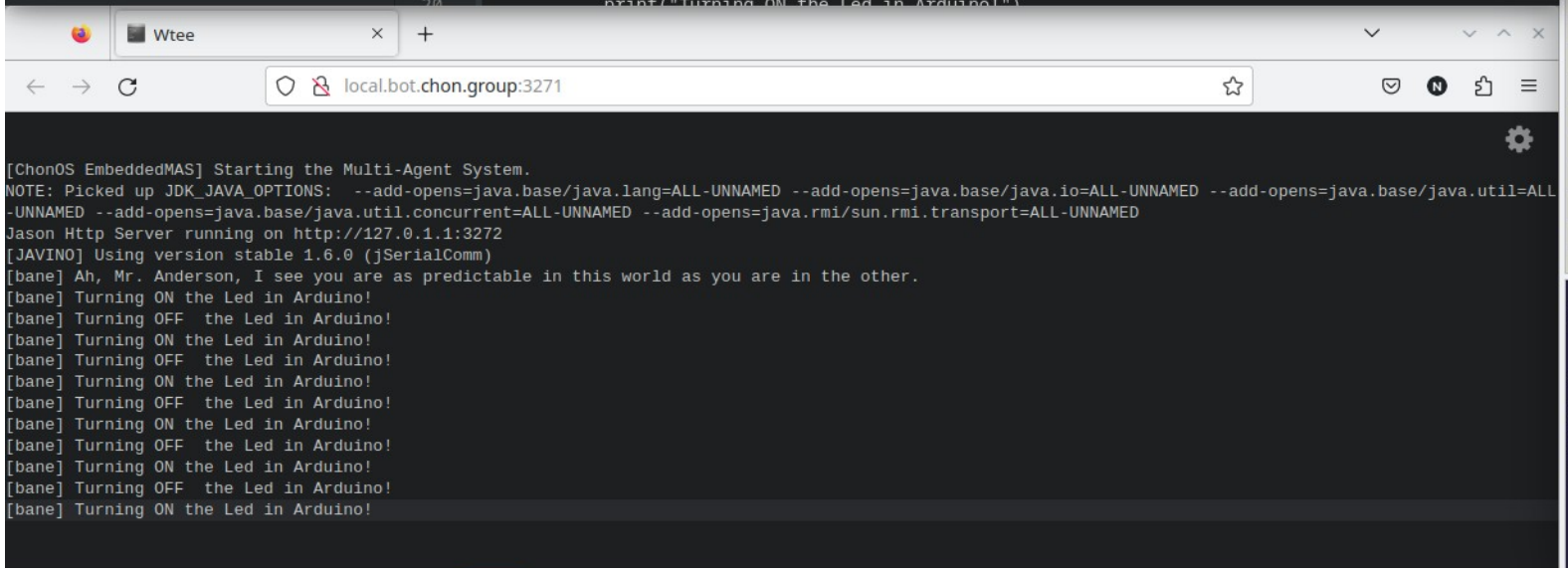
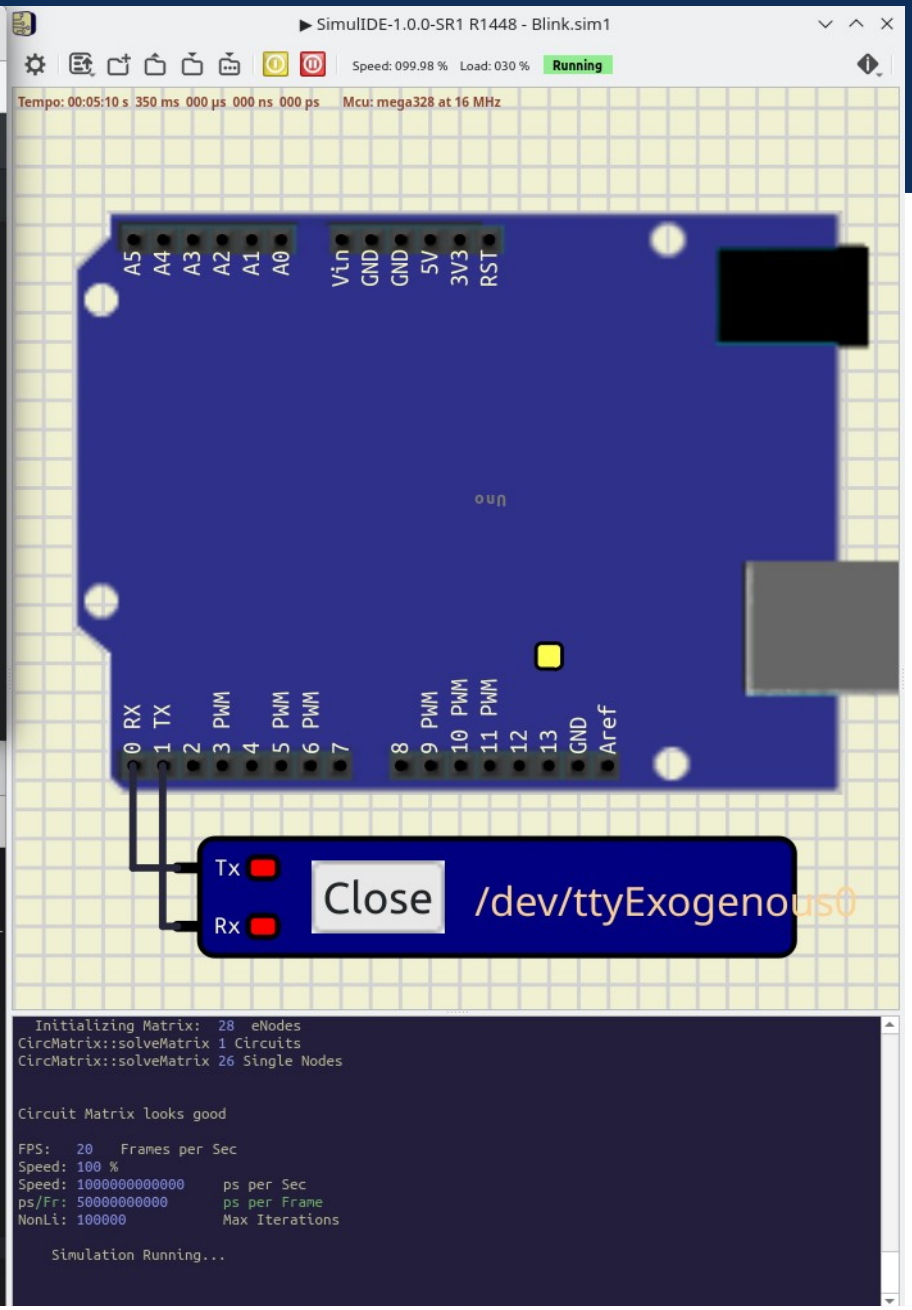
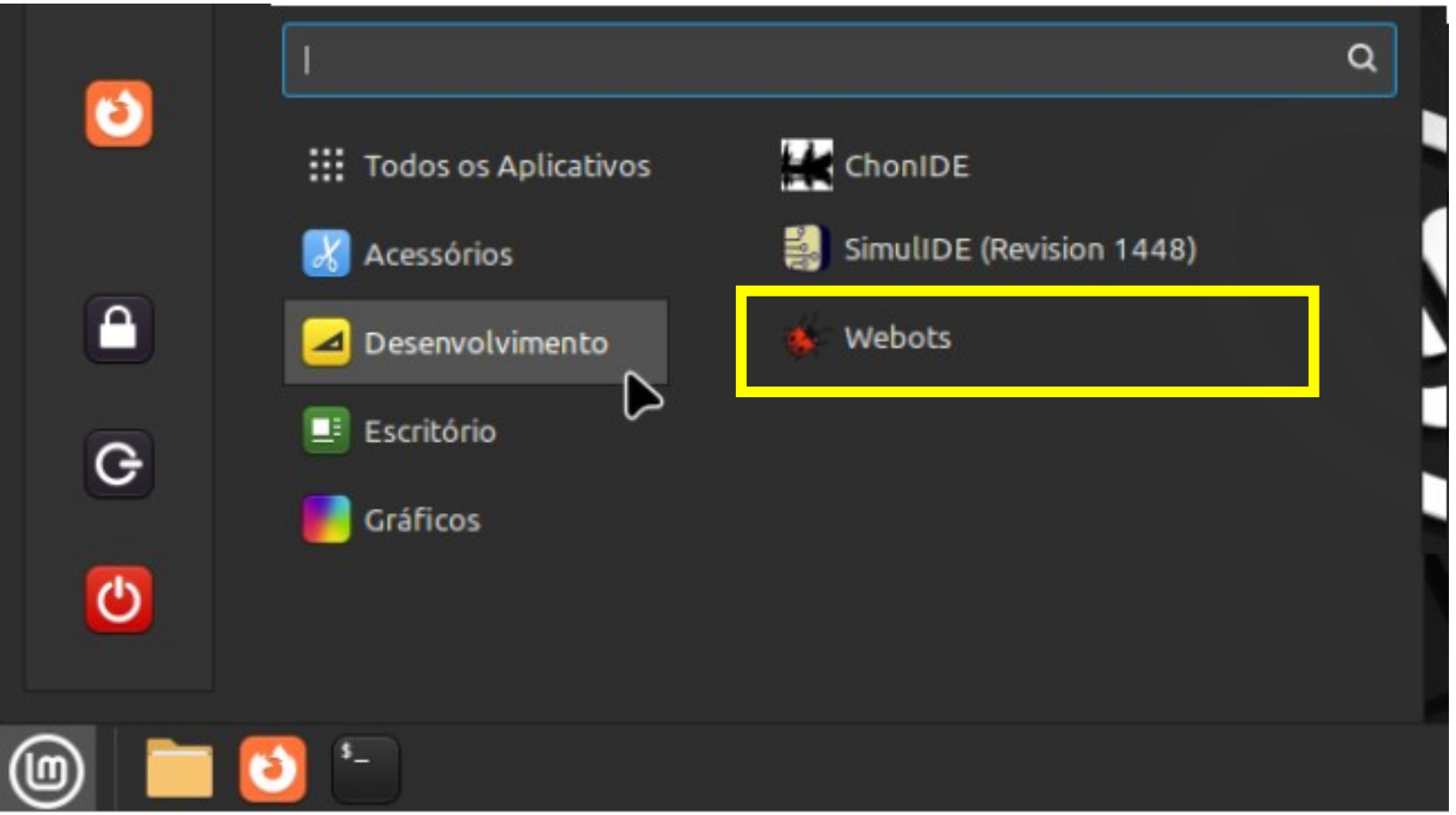
.print("Turning OFF the Led in Arduino!").
+ledStatus(off) <-
.act(ledOn);


Wtee
local.bot.chon.group:3271
[ChonOS EmbeddedMAS] Starting the Multi-Agent System.
NOTE: Picked up JDK_JAVA_OPTIONS: --add-opens=java.base/java.lang=ALL-UNNAMED --add-opens=java.base/java.io=ALL-UNNAMED --add-opens=java.base/java.util=ALL-UNNAMED --add-opens=java.base/java.util.concurrent=ALL-UNNAMED --add-opens=java.rmi/sun.rmi.transport=ALL-UNNAMED
Jason Http Server running on http://127.0.1.1:3272
[JAVINO] Using version stable 1.6.0 (jSerialComm)
[bane] Ah, Mr. Anderson, I see you are as predictable in this world as you are in the other.
[bane] Turning ON the Led in Arduino!
[bane] Turning OFF the Led in Arduino!
[bane] Turning ON the Led in Arduino!
[bane] Turning OFF the Led in Arduino!
[bane] Turning ON the Led in Arduino!
[bane] Turning OFF the Led in Arduino!
[bane] Turning ON the Led in Arduino!
[bane] Turning OFF the Led in Arduino!
[bane] Turning ON the Led in Arduino!
[bane] Turning OFF the Led in Arduino!
[bane] Turning ON the Led in Arduino!


SimulIDE-1.0.0-SR1 R1448 - Blink.sim1
Speed: 099.98 % Load: 030 % Running
Tempo: 00:05:10 s 350 ms 000 µs 000 ns 000 ps Mcu: mega328 at 16 MHz
A5 A4 A3 A2 A1 A0 Vin GND GND 5V 3V3 RST
0 RX 1 TX 2 3 PWM 4 5 PWM 6 PWM 7 8 9 PWM 10 PWM 11 PWM 12 13 GND Aref
Tx
Rx
Close
/dev/ttyExogenous0
Initializing Matrix: 28 eNodes
CircMatrix::solveMatrix 1 Circuits
CircMatrix::solveMatrix 26 Single Nodes
Circuit Matrix looks good
FPS: 20 Frames per Sec
Speed: 100 %
Speed: 1000000000000 ps per Sec
ps/Fr: 50000000000 ps per Frame
NonLi: 100000 Max Iterations
Simulation Running...

Webots

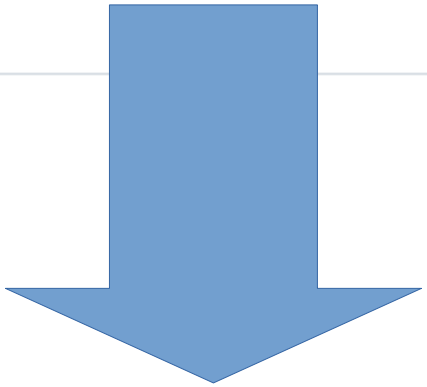


Manual de instalação
https://cyberbotics.com/doc/guide/installation-procedure#installing-the-debian-package-with-the-advanced-packaging-tool-apt

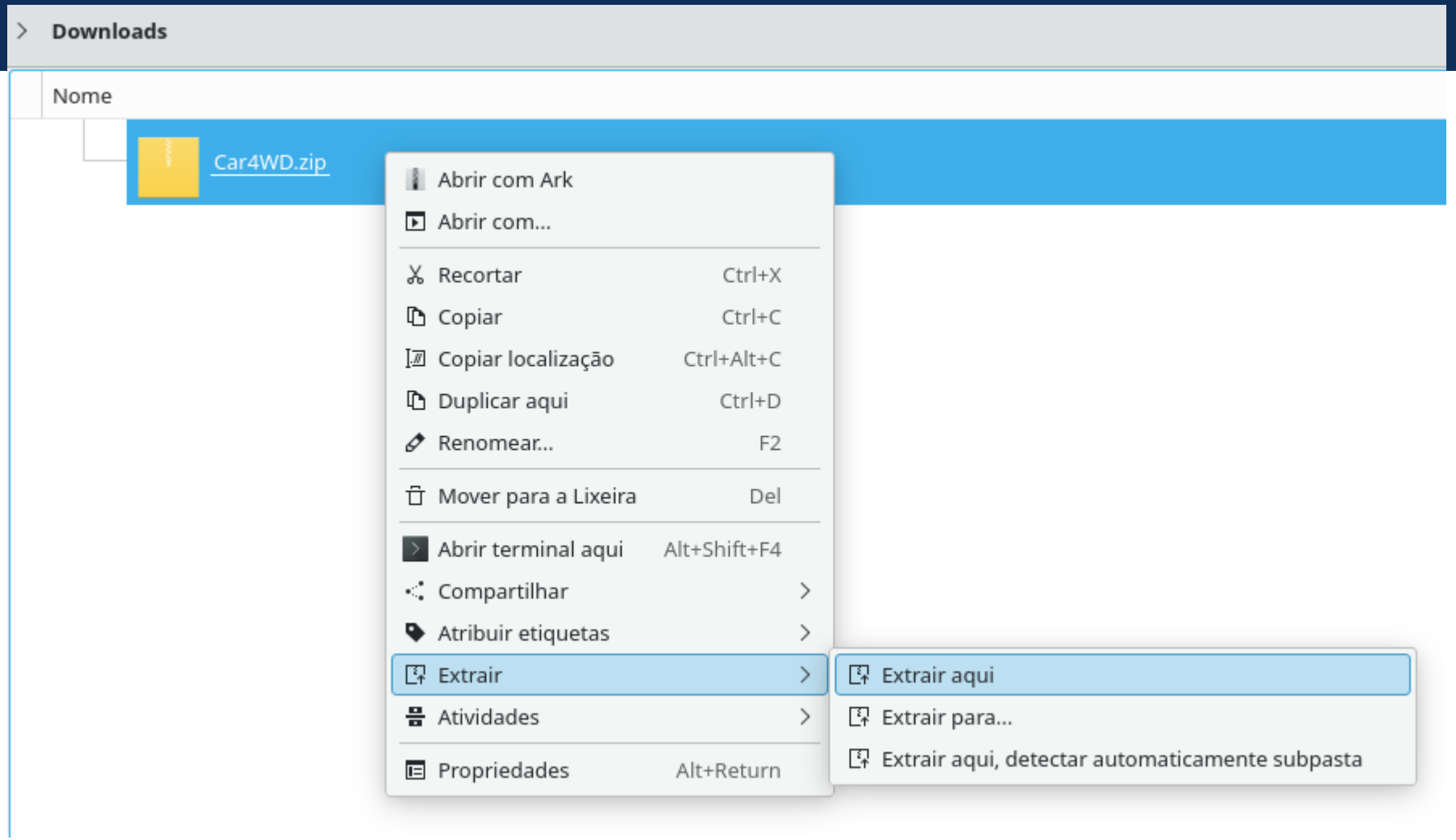
distributedAndEmbeddedAI / course / 05-TheDevelopmentTool / Examples /

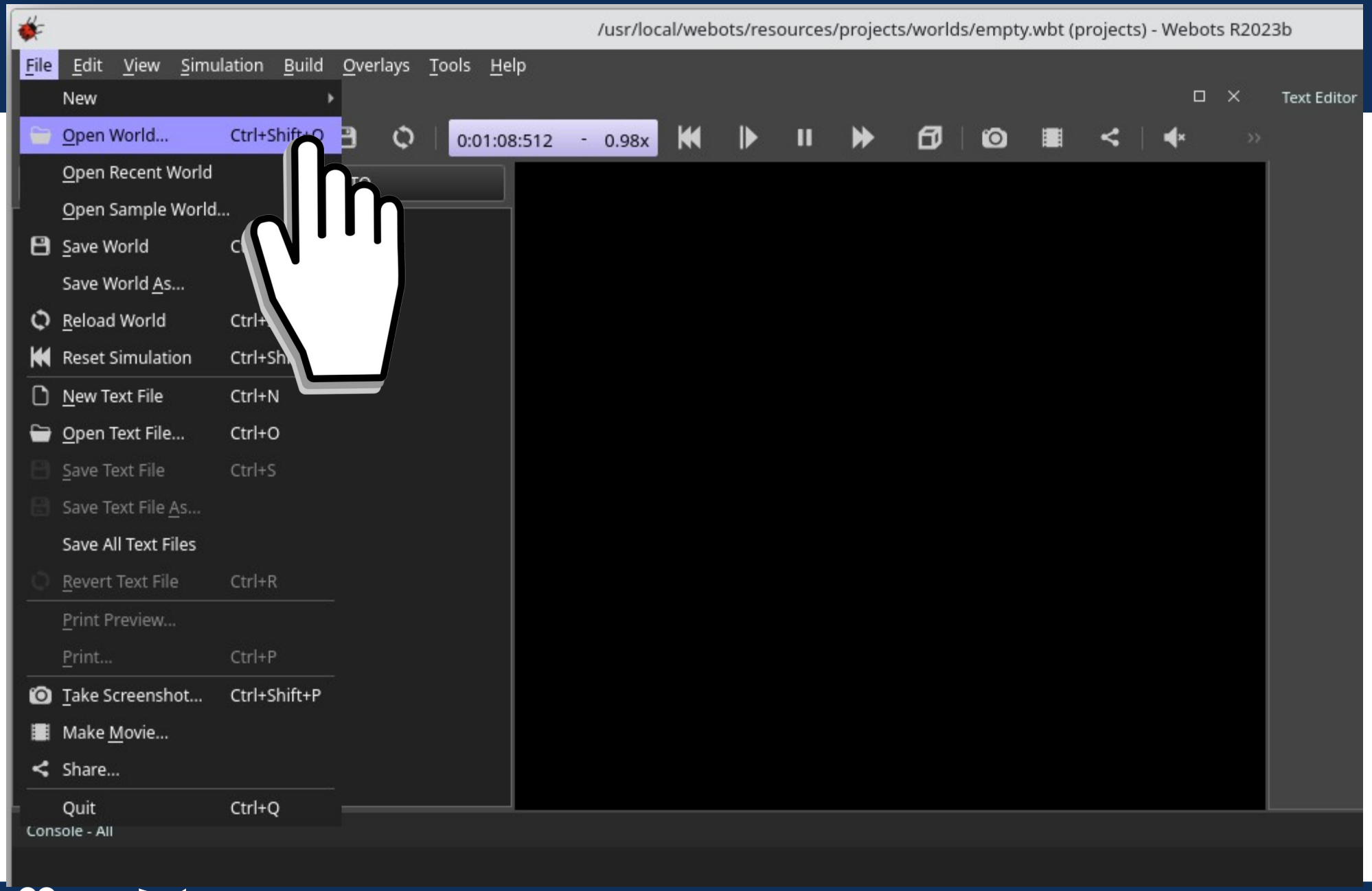
nilsonLazarin Car4WD Simulated World developed by @bptfreitas

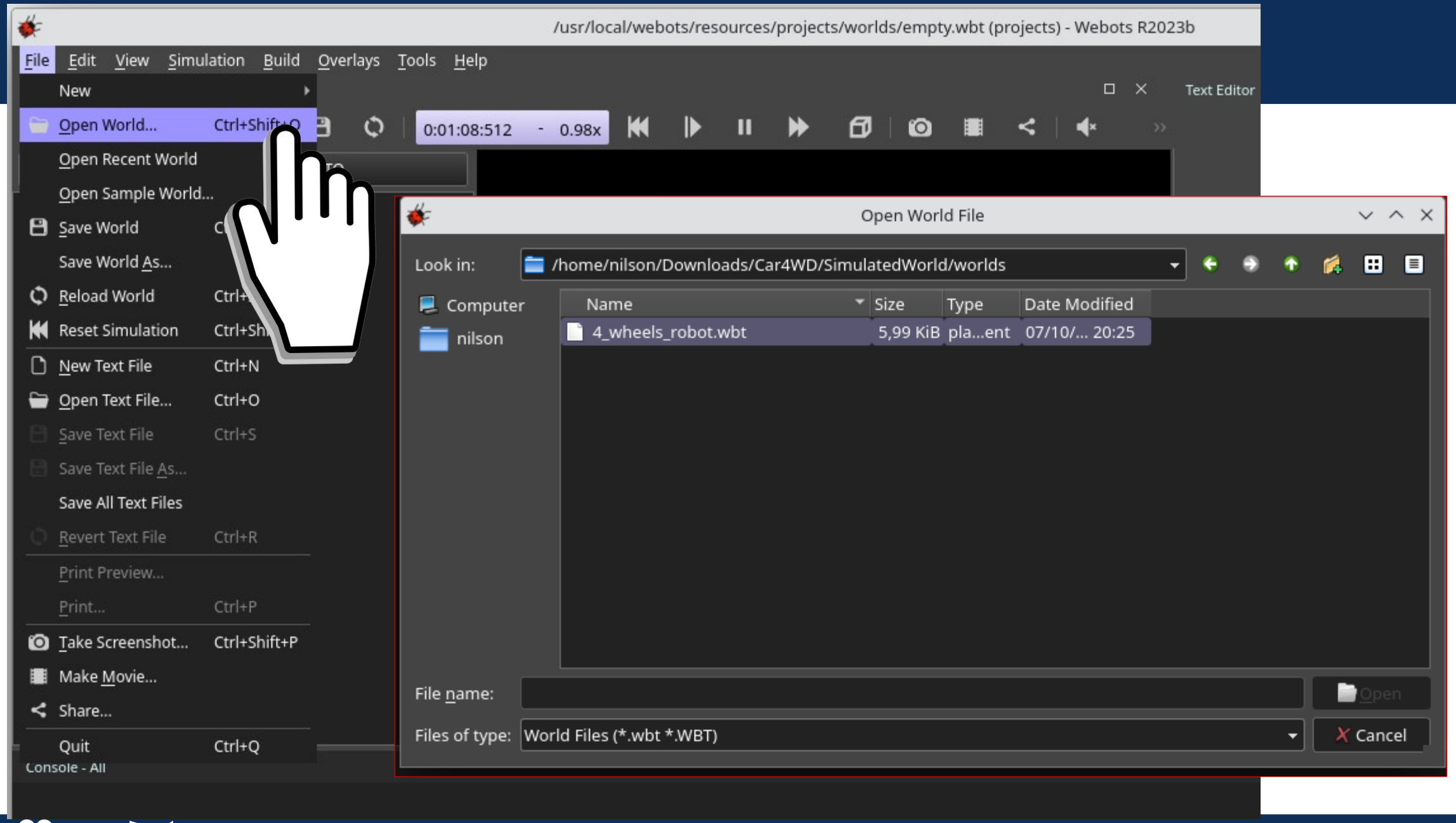
Name	Last commit
..	
Blink	developmer
Car4WD	Car4WD Sim
Blink.zip	developmer
Car4WD.zip	Car4WD Sim

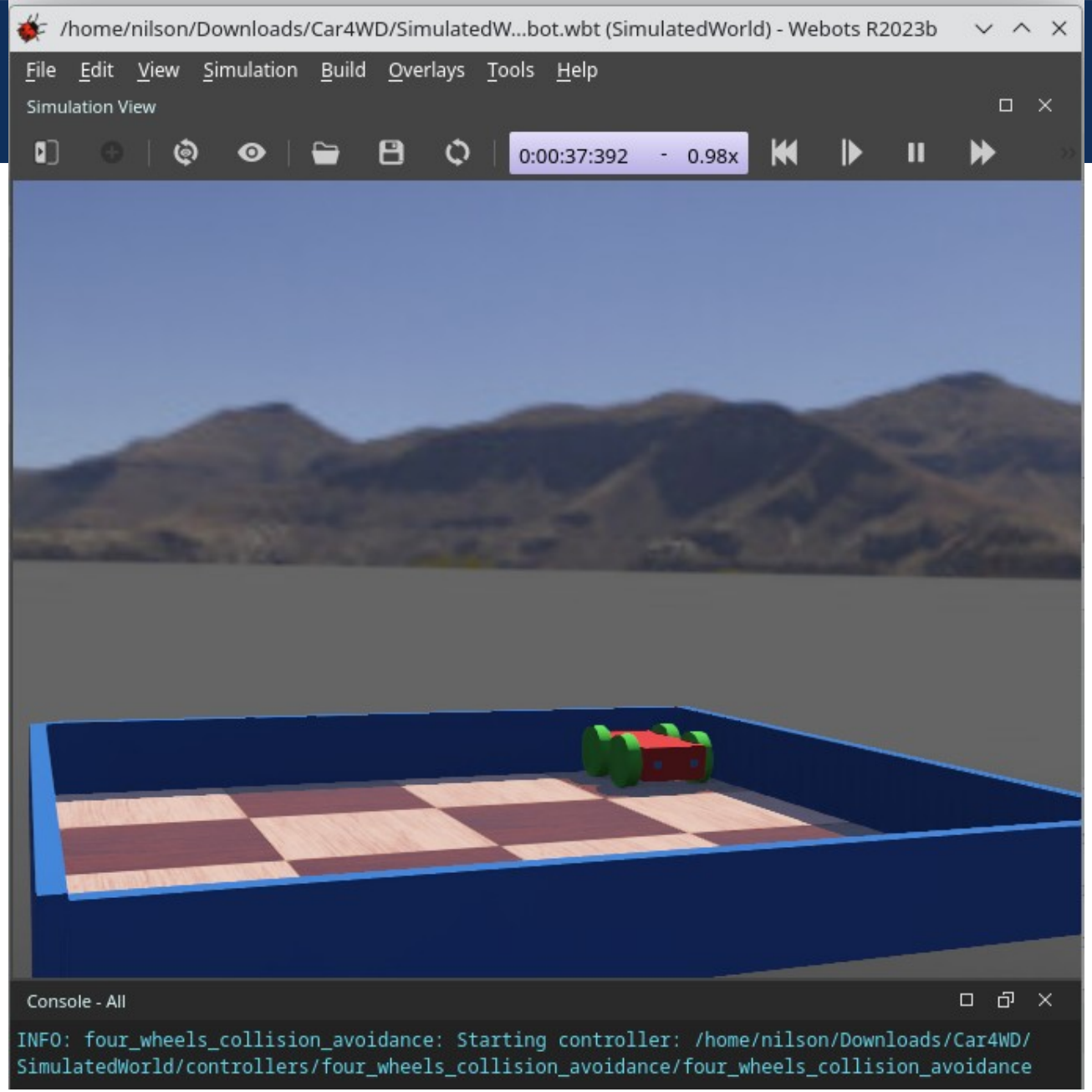


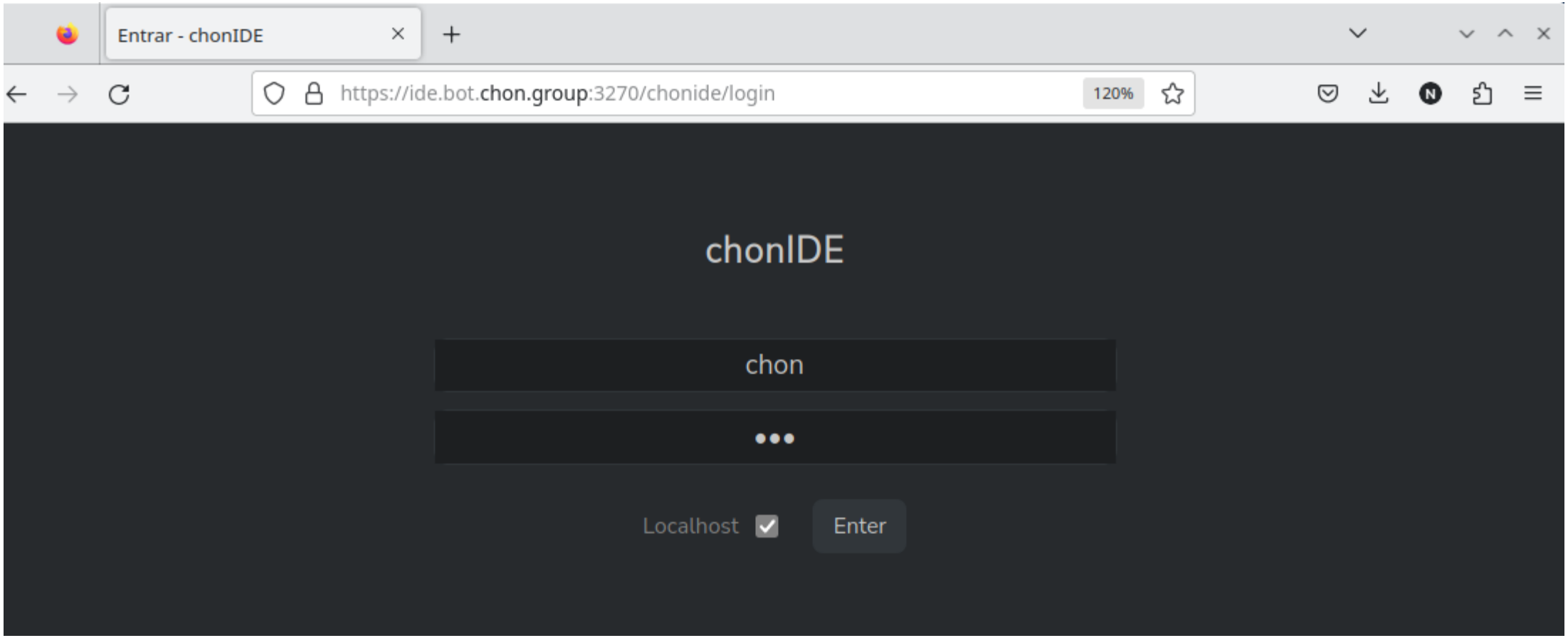
https://github.com/chon-group/distributedAndEmbeddedAI/raw/main/course/05-TheDevelopmentTool/Examples/Car4WD.zip

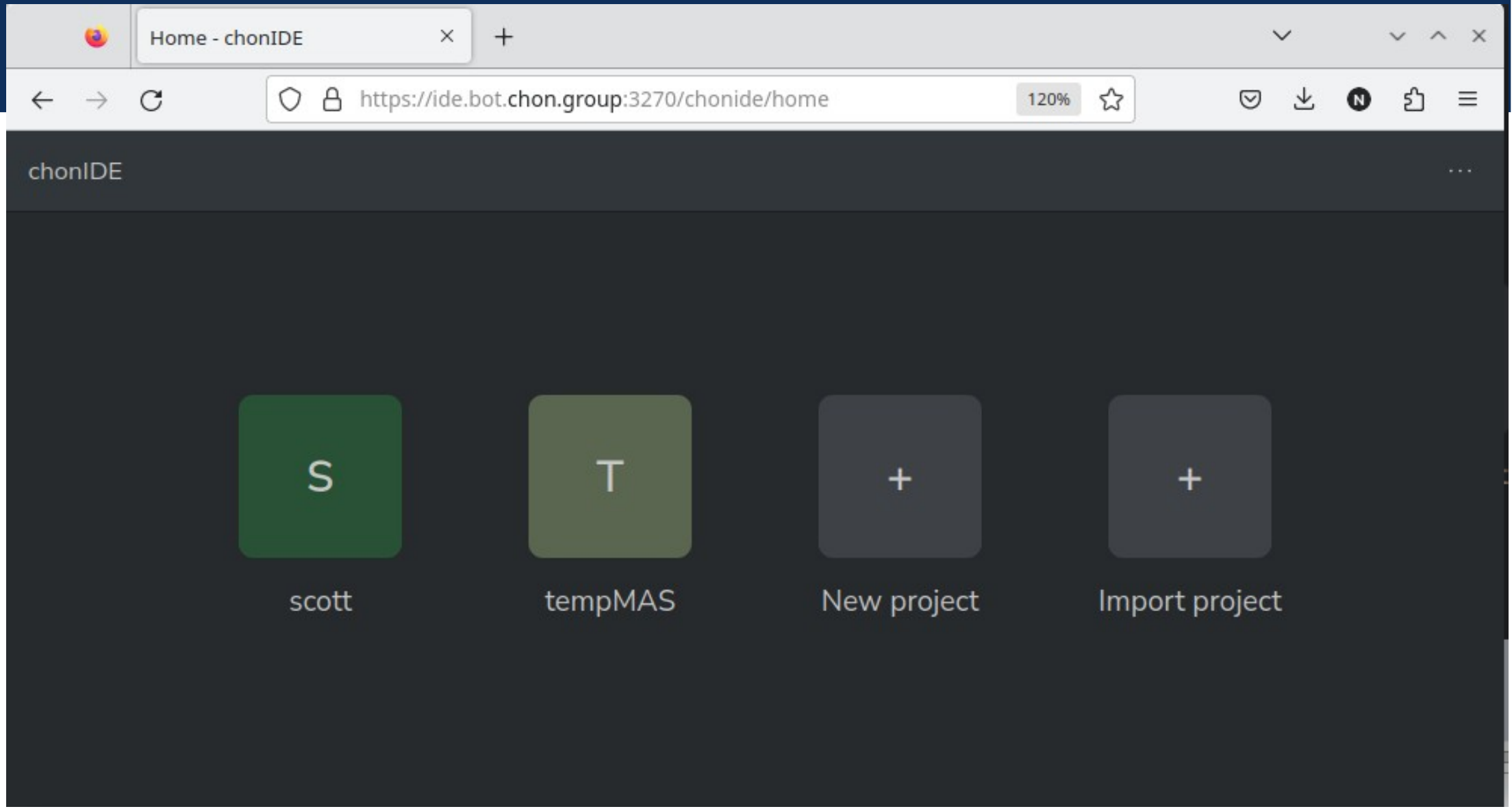

Downloads
Nome
Car4WD.zip
Abrir com Ark
Abrir com...
Recortar Ctrl+X
Copiar Ctrl+C
Copiar localização Ctrl+Alt+C
Duplicar aqui Ctrl+D
Renomear... F2
Mover para a Lixeira Del
Abrir terminal aqui Alt+Shift+F4
Compartilhar
Atribuir etiquetas
Extrair
Atividades
Propriedades Alt+Return
Extrair aqui
Extrair para...
Extrair aqui, detectar automaticamente subpasta

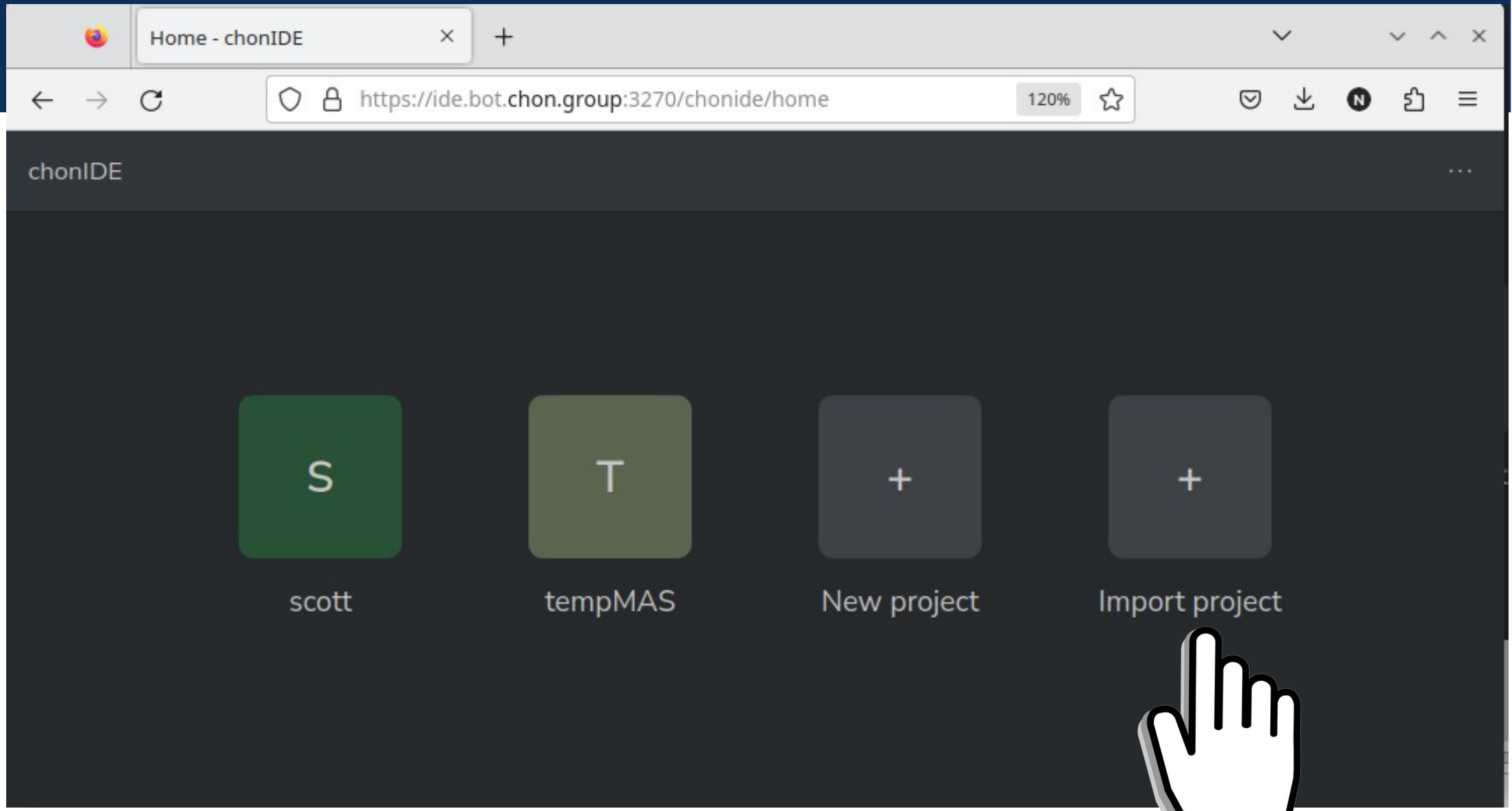

/usr/local/webots/resources/projects/worlds/empty.wbt (projects) - Webots R2023b
File Edit View Simulation Build Overlays Tools Help
New
Open World... Ctrl+Shift+O
Open Recent World
Open Sample World...
Save World
Save World As...
Reload World
Reset Simulation
New Text File Ctrl+N
Open Text File... Ctrl+O
Save Text File Ctrl+S
Save Text File As...
Save All Text Files
Revert Text File Ctrl+R
Print Preview...
Print... Ctrl+P
Take Screenshot... Ctrl+Shift+P
Make Movie...
Share...
Quit Ctrl+Q
0:01:08:512 - 0.98x
Text Editor
Console - All

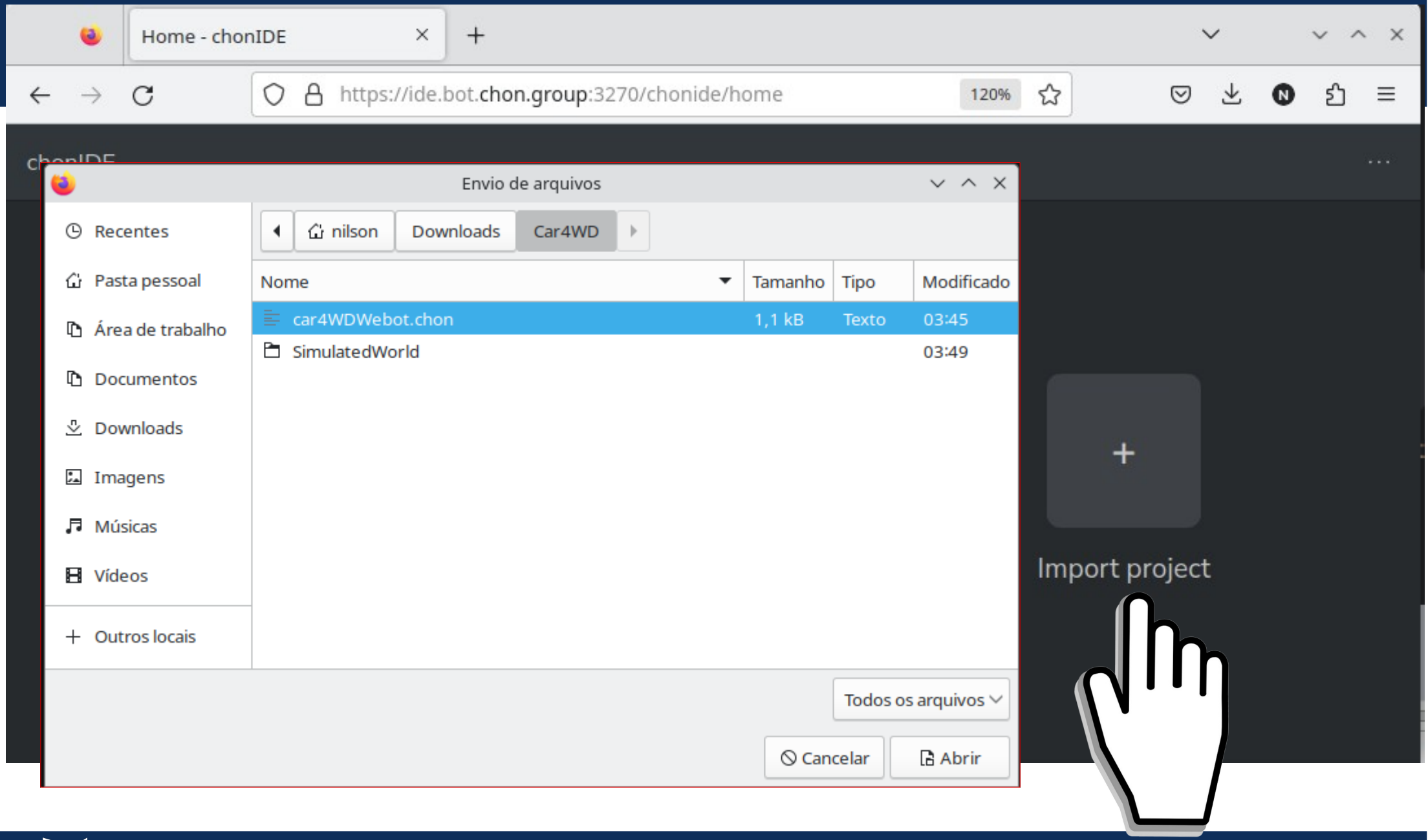

/usr/local/webots/resources/projects/worlds/empty.wbt (projects) - Webots R2023b
File Edit View Simulation Build Overlays Tools Help
New
Open World... Ctrl+Shift+O
Open Recent World
Open Sample World...
Save World
Save World As...
Reload World
Reset Simulation
New Text File Ctrl+N
Open Text File... Ctrl+O
Save Text File Ctrl+S
Save Text File As...
Save All Text Files
Revert Text File Ctrl+R
Print Preview...
Print... Ctrl+P
Take Screenshot... Ctrl+Shift+P
Make Movie...
Share...
Quit Ctrl+Q
Console - All
Text Editor
0:01:08:512 - 0.98x
Open World File
Look in: /home/nilson/Downloads/Car4WD/SimulatedWorld/worlds
Computer
nilson
Name Size Type Date Modified
4_wheels_robot.wbt 5,99 KiB pla...ent 07/10/... 20:25
File name:
Open
Files of type: World Files (*.wbt *.WBT)
Cancel

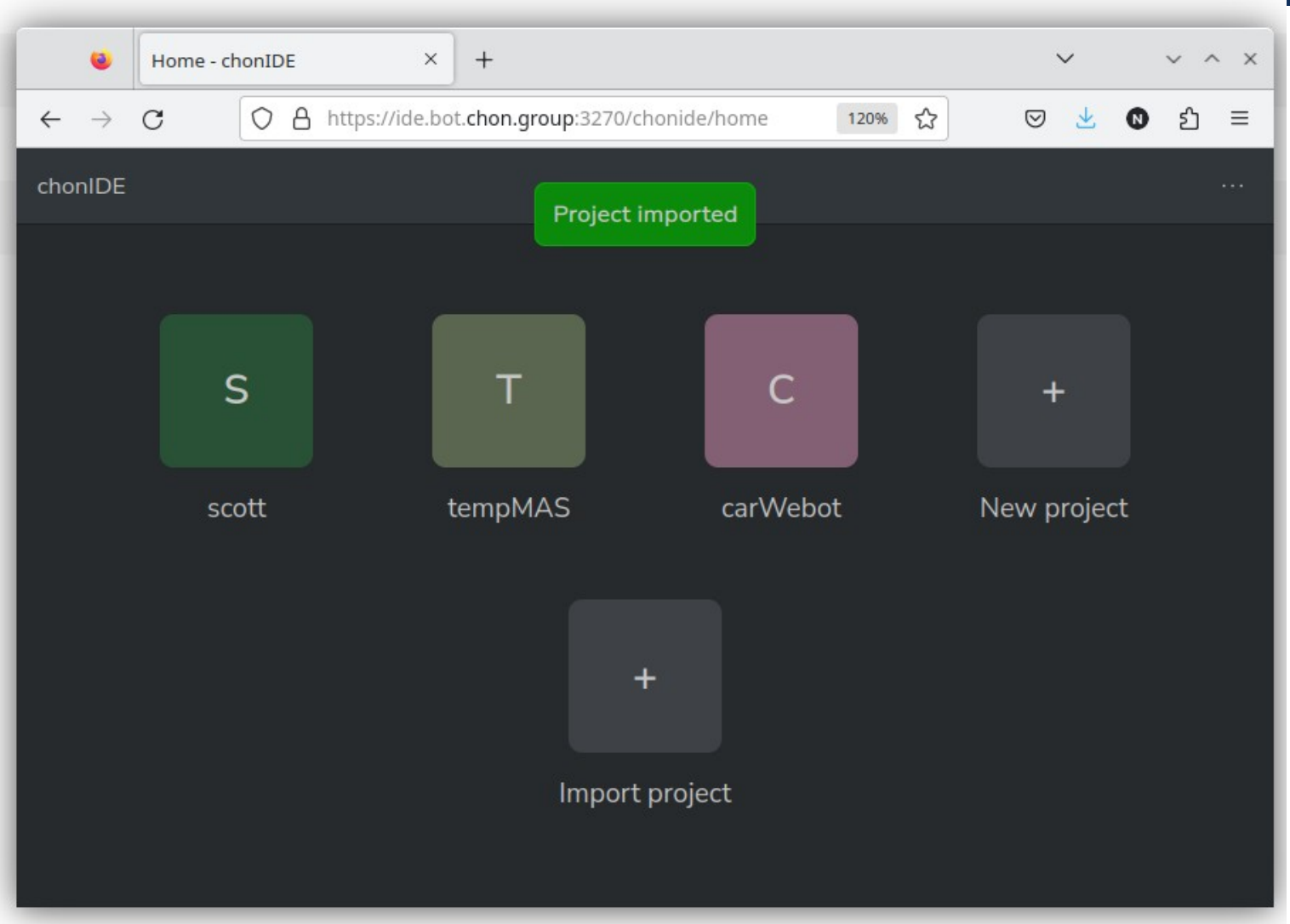

/home/nilson/Downloads/Car4WD/SimulatedW...bot.wbt (SimulatedWorld) - Webots R2023b
File Edit View Simulation Build Overlays Tools Help
Simulation View
0:00:37:392 - 0.98x
Console - All
INFO: four_wheels_collision_avoidance: Starting controller: /home/nilson/Downloads/Car4WD/SimulatedWorld/controllers/four_wheels_collision_avoidance/four_wheels_collision_avoidance

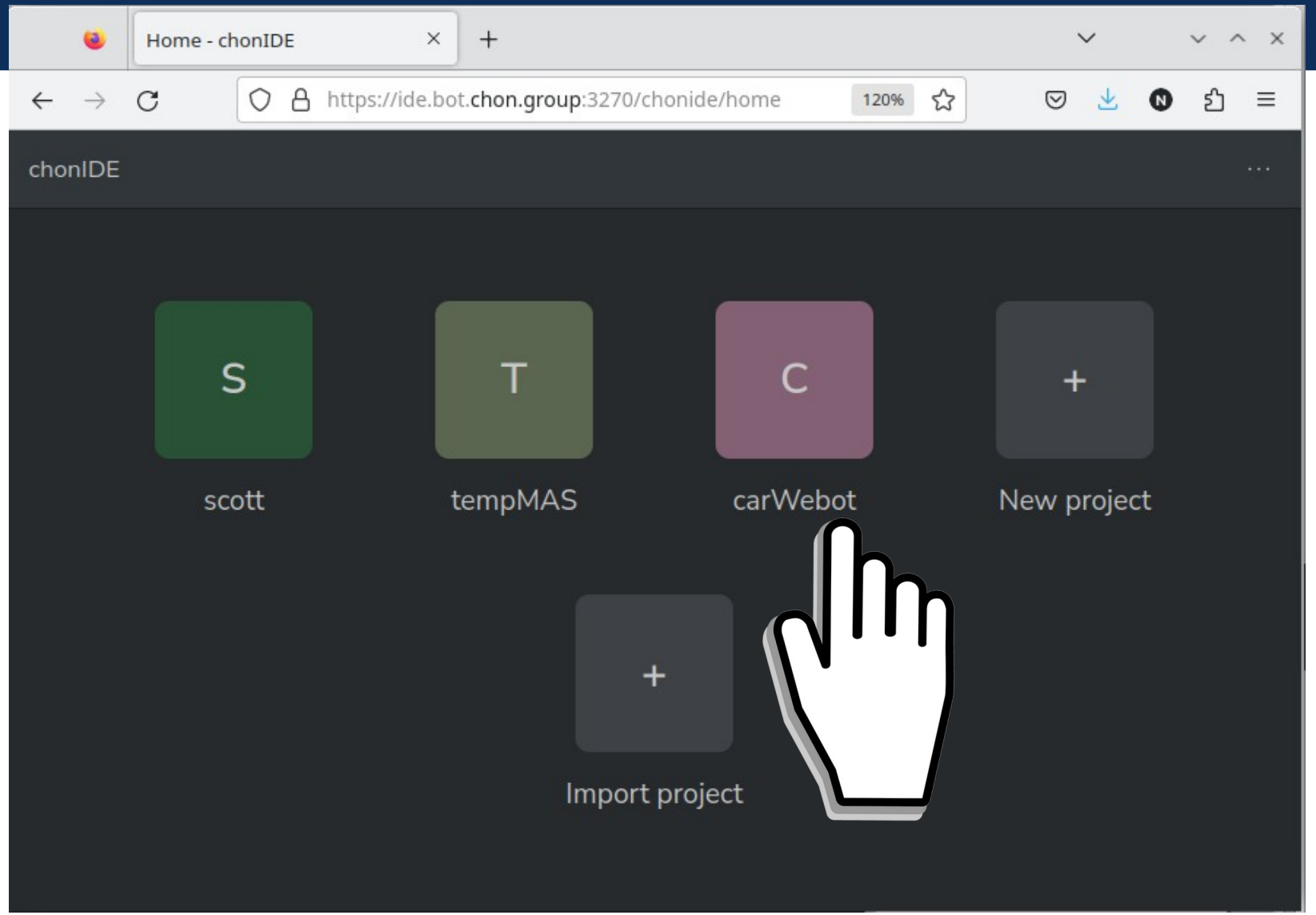

Entrar - chonIDE
https://ide.bot.chon.group:3270/chonide/login
120%
chonIDE
chon
Localhost
Enter

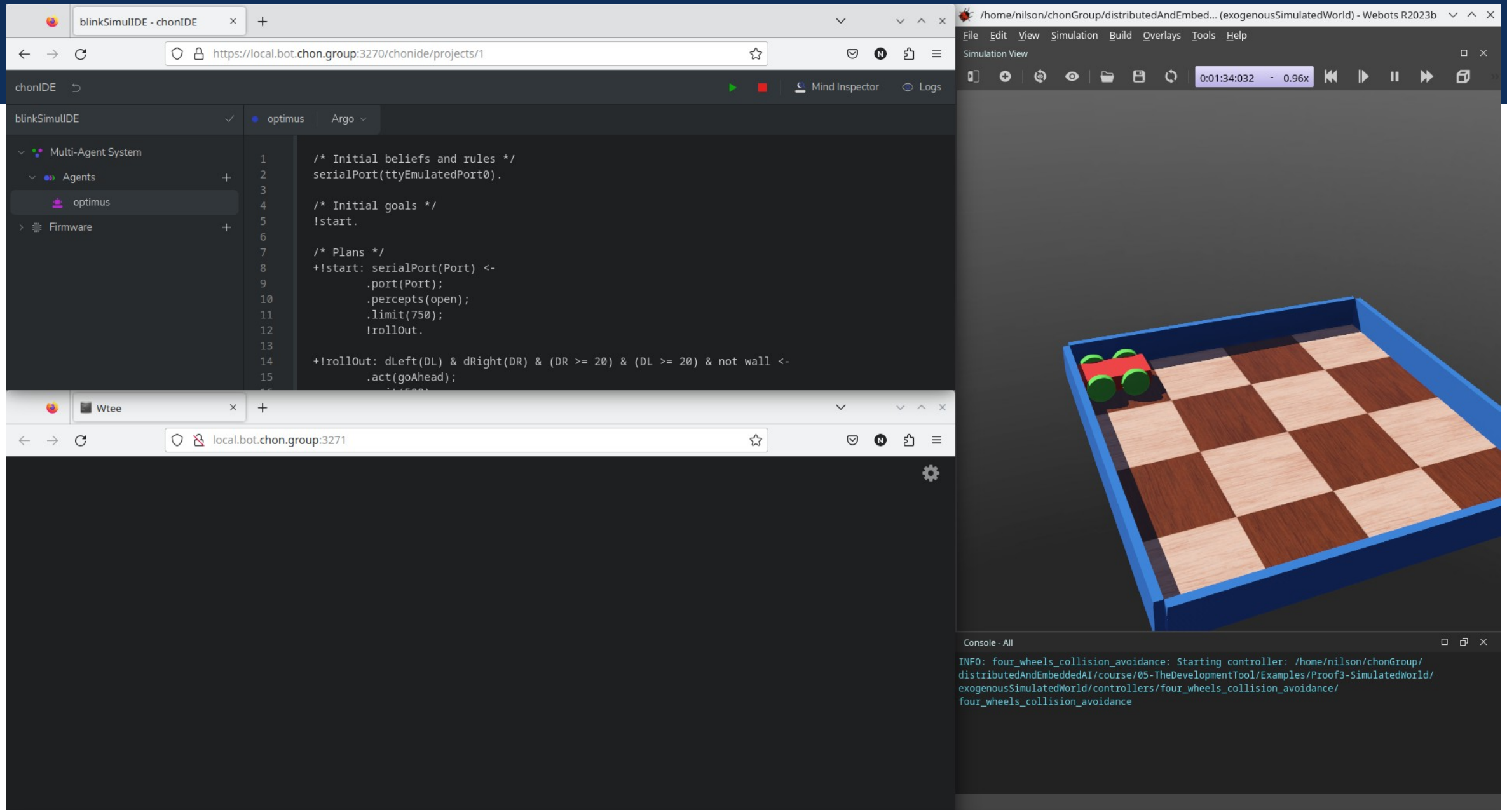

Home - chonIDE
https://ide.bot.chon.group:3270/chonide/home
120%
chonIDE
S
scott
T
tempMAS
+
New project
+
Import project

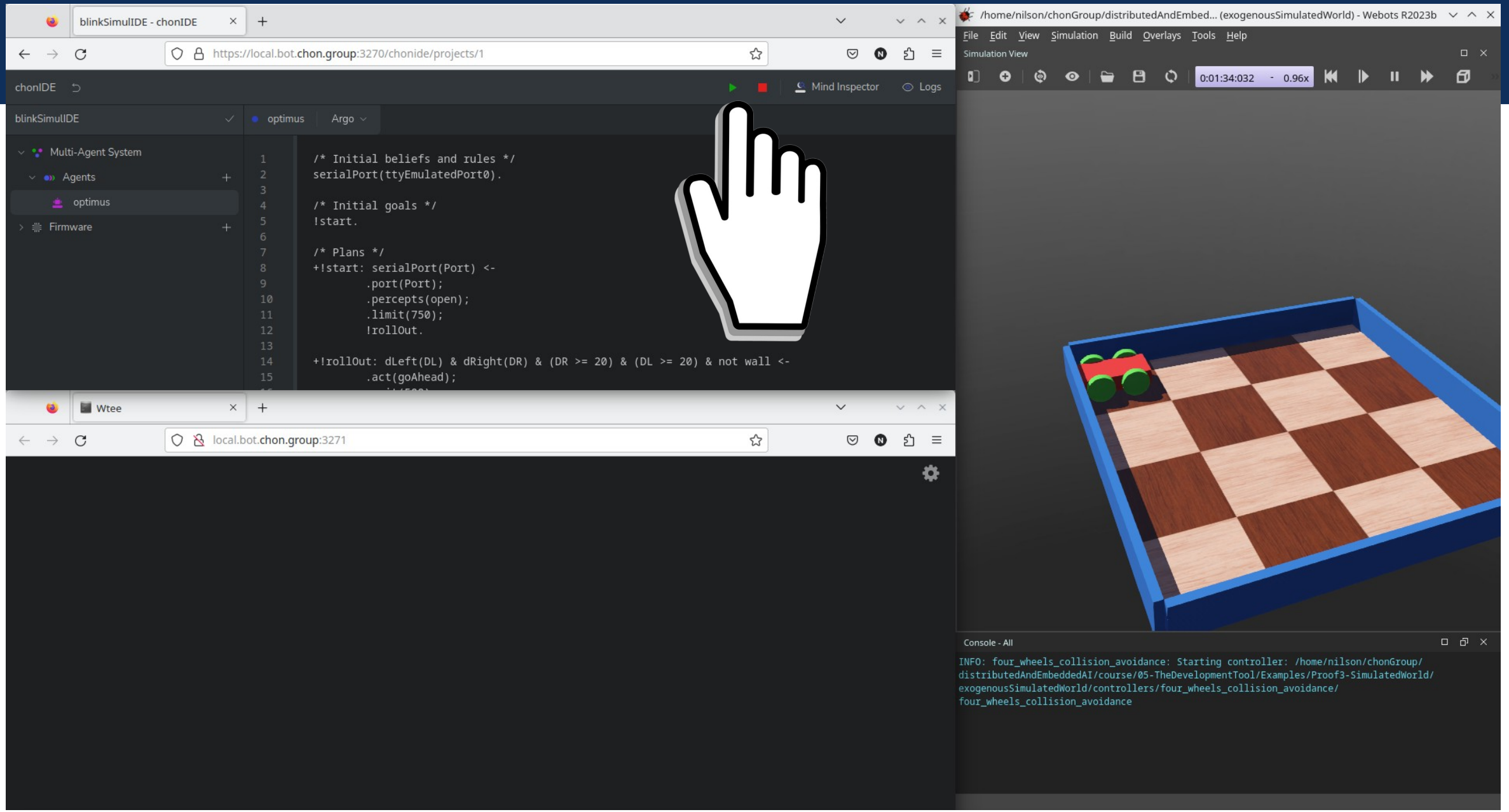

Home - chonIDE
https://ide.bot.chon.group:3270/chonide/home
120%
chonIDE
S
T
+
+
scott
tempMAS
New project
Import project


Home - chonIDE
https://ide.bot.chon.group:3270/chonide/home
120%
Envio de arquivos
Recentes
Pasta pessoal
Área de trabalho
Documentos
Downloads
Imagens
Músicas
Vídeos
Outros locais
nilson
Downloads
Car4WD
Nome
Tamanho
Tipo
Modificado
car4WDWebot.chon
1,1 kB
Texto
03:45
SimulatedWorld
03:49
Todos os arquivos
Cancelar
Abrir
Import project


Home - chonIDE
https://ide.bot.chon.group:3270/chonide/home
120%
chonIDE
Project imported
S
scott
T
tempMAS
C
carWebot
+
New project
+
Import project


Home - chonIDE
https://ide.bot.chon.group:3270/chonide/home
120%
chonIDE
S
scott
T
tempMAS
C
carWebot
+
New project
+
Import project


blinkSimulIDE - chonIDE
https://local.bot.chon.group:3270/chonide/projects/1
chonIDE
Mind Inspector
Logs
blinkSimulIDE
optimus
Argo
Multi-Agent System
Agents
optimus
Firmware
/* Initial beliefs and rules */
serialPort(ttyEmulatedPort0).
/* Initial goals */
!start.
/* Plans */
+!start: serialPort(Port) <-
.port(Port);
.percepts(open);
.limit(750);
!rollOut.
+!rollOut: dLeft(DL) & dRight(DR) & (DR >= 20) & (DL >= 20) & not wall <-
.act(goAhead);
Wtee
local.bot.chon.group:3271
/home/nilson/chonGroup/distributedAndEmbed... (exogenousSimulatedWorld) - Webots R2023b
File Edit View Simulation Build Overlays Tools Help
Simulation View
0:01:34:032 - 0.96x
Console - All
INFO: four_wheels_collision_avoidance: Starting controller: /home/nilson/chonGroup/distributedAndEmbeddedAI/course/05-TheDevelopmentTool/Examples/Proof3-SimulatedWorld/exogenousSimulatedWorld/controllers/four_wheels_collision_avoidance/four_wheels_collision_avoidance


blinkSimulIDE - chonIDE
https://local.bot.chon.group:3270/chonide/projects/1
chonIDE
Mind Inspector
Logs
blinkSimulIDE
optimus
Argo
Multi-Agent System
Agents
optimus
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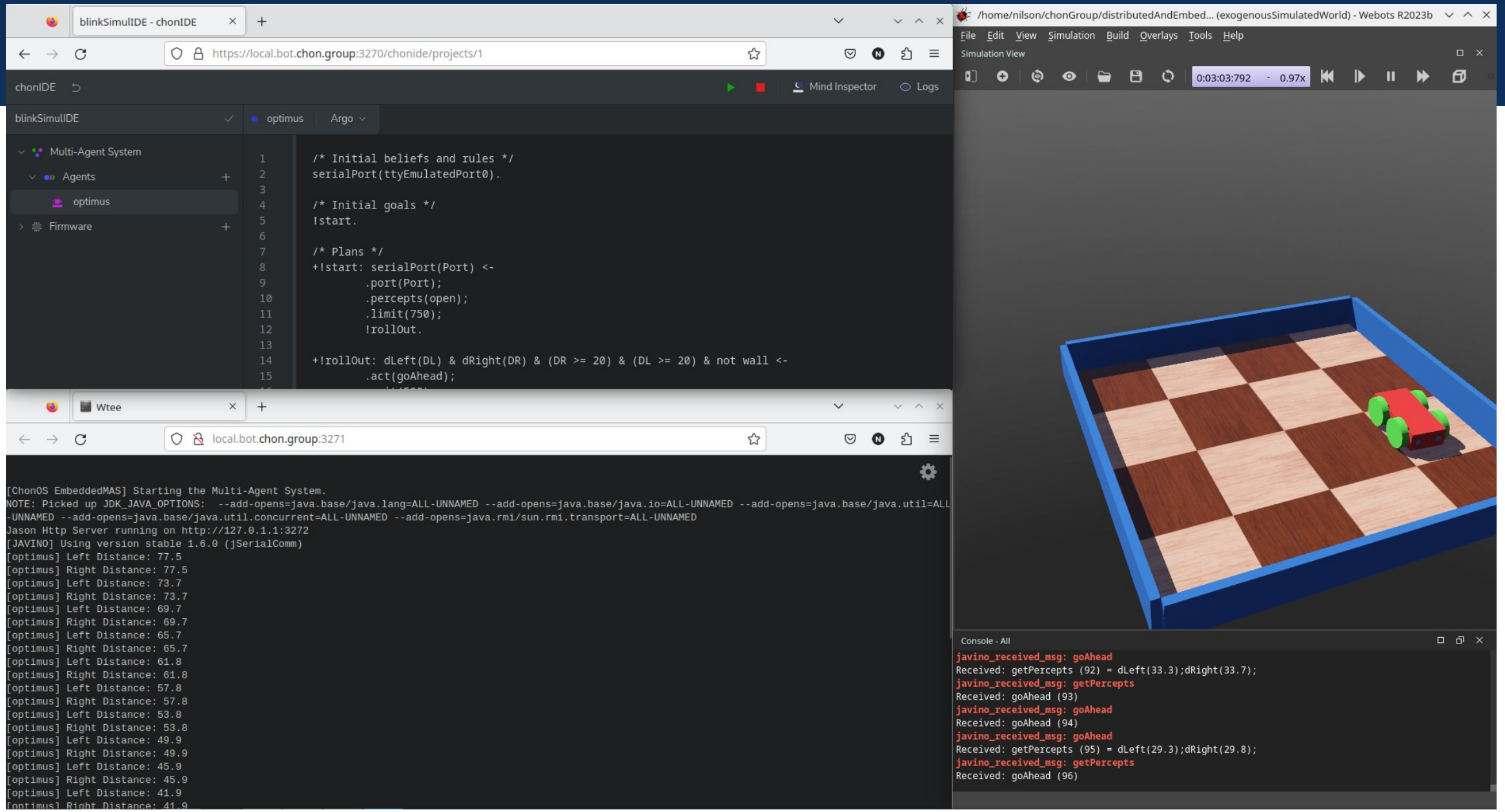
.limit(750);
!rollOut.
+!rollOut: dLeft(DL) & dRight(DR) & (DR >= 20) & (DL >= 20) & not wall <-
.act(goAhead);
Wtee
local.bot.chon.group:3271
/home/nilson/chonGroup/distributedAndEmbed... (exogenousSimulatedWorld) - Webots R2023b
File Edit View Simulation Build Overlays Tools Help
Simulation View
0:01:34:032 - 0.96x
Console - All
INFO: four_wheels_collision_avoidance: Starting controller: /home/nilson/chonGroup/distributedAndEmbeddedAI/course/05-TheDevelopmentTool/Examples/Proof3-SimulatedWorld/exogenousSimulatedWorld/controllers/four_wheels_collision_avoidance/four_wheels_collision_avoidance


blinkSimulIDE - chonIDE
https://local.bot.chon.group:3270/chonide/projects/1
chonIDE
Mind Inspector
Logs
blinkSimulIDE
optimus
Argo
Multi-Agent System
Agents
optimus
Firmware
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.act(goAhead);
Wtee
local.bot.chon.group:3271
[ChonOS EmbeddedMAS] Starting the Multi-Agent System.
NOTE: Picked up JDK_JAVA_OPTIONS: --add-opens=java.base/java.lang=ALL-UNNAMED --add-opens=java.base/java.io=ALL-UNNAMED --add-opens=java.base/java.util=ALL-UNNAMED --add-opens=java.base/java.util.concurrent=ALL-UNNAMED --add-opens=java.rmi/sun.rmi.transport=ALL-UNNAMED
Jason Http Server running on http://127.0.1.1:3272
[JAVINO] Using version stable 1.6.0 (jSerialComm)
[optimus] Left Distance: 77.5
[optimus] Right Distance: 77.5
[optimus] Left Distance: 73.7
[optimus] Right Distance: 73.7
[optimus] Left Distance: 69.7
[optimus] Right Distance: 69.7
[optimus] Left Distance: 65.7
[optimus] Right Distance: 65.7
[optimus] Left Distance: 61.8
[optimus] Right Distance: 61.8
[optimus] Left Distance: 57.8
[optimus] Right Distance: 57.8
[optimus] Left Distance: 53.8
[optimus] Right Distance: 53.8
[optimus] Left Distance: 49.9
[optimus] Right Distance: 49.9
[optimus] Left Distance: 45.9
[optimus] Right Distance: 45.9
[optimus] Left Distance: 41.9
/home/nilson/chonGroup/distributedAndEmbed... (exogenousSimulatedWorld) - Webots R2023b
File Edit View Simulation Build Overlays Tools Help
Simulation View
0:03:03:792 - 0.97x
Console - All
javino_received_msg: goAhead
Received: getPercepts (92) = dLeft(33.3);dRight(33.7);
javino_received_msg: getPercepts
Received: goAhead (93)
javino_received_msg: goAhead
Received: goAhead (94)
javino_received_msg: goAhead
Received: getPercepts (95) = dLeft(29.3);dRight(29.8);
javino_received_msg: getPercepts
Received: goAhead (96)

Agradecimentos

OBRIGADO!

pantoja@cefet-rj.br
nilson.lazarin@cefet-rj.br