🧊 Mild Challenge: Timed Motor Burst

🧠 Code:

```
Define: Time
Main LED: Red
Stabilization: Off
Loop until time elapsed > 10
Raw motor left 106 right 183 for 5s
Exit program
```
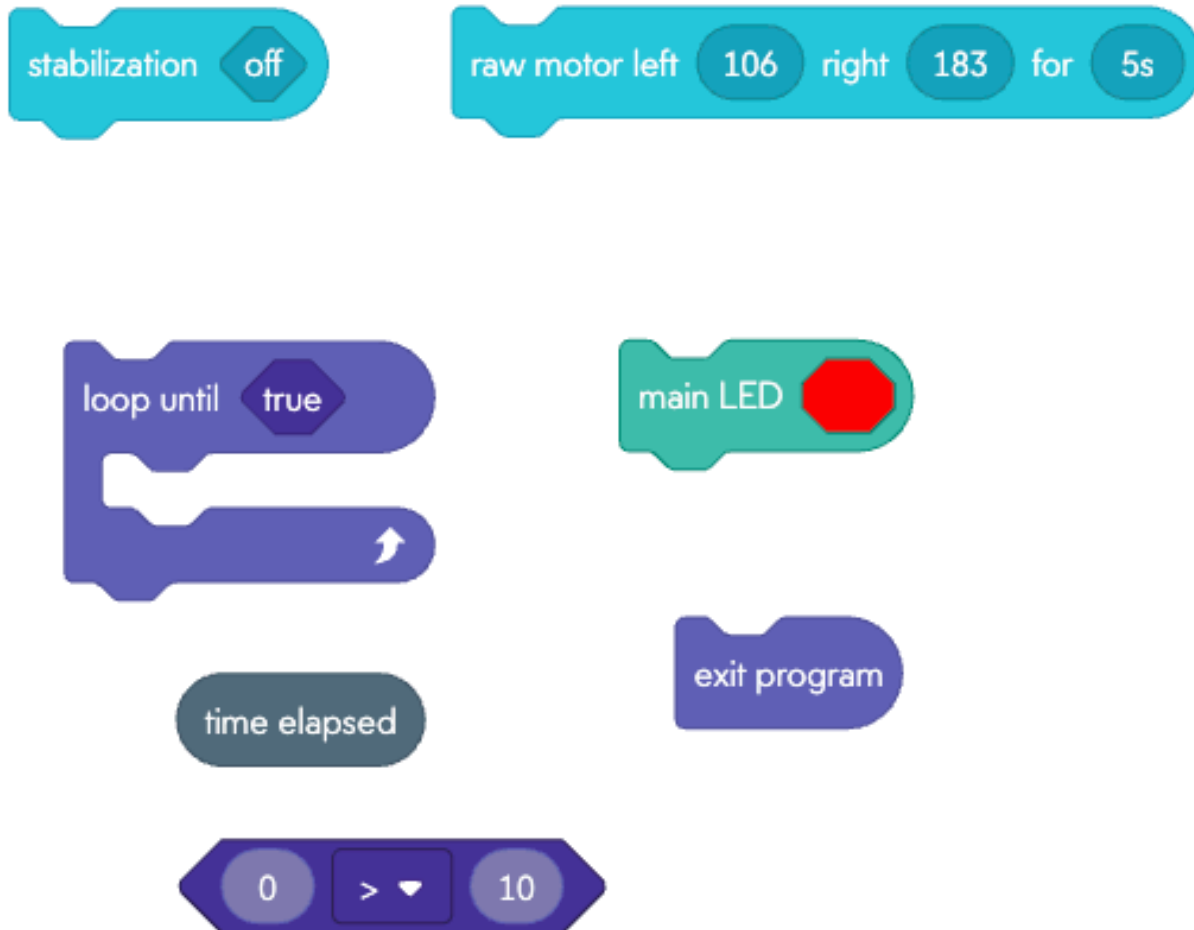
🔍 What's Happening:

The robot waits quietly for 10 seconds. Once the time is up, it activates its motors for 5 seconds, then stops.

💡 Why It's Useful:

- Introduces the idea of **waiting with purpose**

- Shows how loops can monitor **time sensors**
- Great for timed races, countdowns, or delayed reactions

stabilization off

raw motor left 106 right 183 for 5s

loop until true

main LED

time elapsed

exit program

0 > ▼ 10

🌶️ Hot Challenge: Wake-Up Alarm

🧠 Code:

```
Define: Acceleration
Main LED: Blue
Stabilization: Off
Forever loop
If acceleration > 2g
Play sound: Beep
Display text: "WAKE UP!"
Wait 1 second
Exit loop
End if
End loop
```
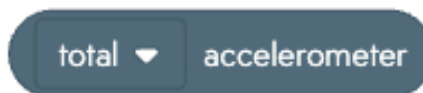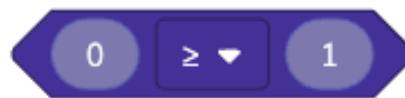
🔍 What's Happening:

The robot waits until it feels movement (like being picked up). When it does, it plays a sound and says "wake up!"

💡 Why It's Useful:

- Teaches how to use **motion sensors**

- Loops help the robot stay alert and **react instantly**

- Perfect for interactive games, alarms, or motion-triggered actions

stabilization off

main LED 🔵

delay for 1s

0 ≥ ▼ 1

total ▼ accelerometer

loop until true
↻

main LED 🔴

play submarine sound and wait

exit program

speak wake up and wait

🌶️🌶️ Spicy Challenge: Light Sensor Watchdog

🧠 Code:

```
Define: Light level
Main LED: Yellow
Stabilization: Off
Forever loop
If light level >= 50
Display text: "LIGHT"
Else
Display text: "DARK"
Wait 2 seconds
End if
End loop
```
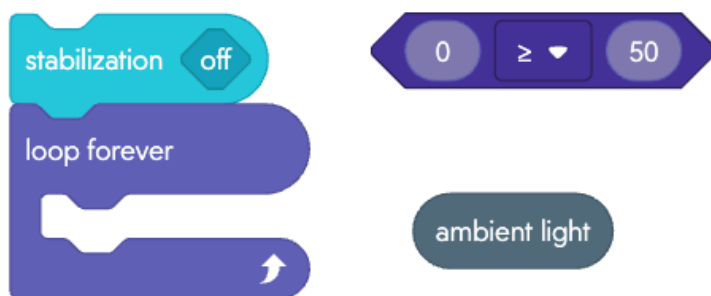
🔍 What's Happening:

The robot keeps showing "LIGHT" until it gets dark. When the light level drops below 50, it switches to "DARK" and pauses for 2 seconds — then goes back to watching.

💡 Why It's Useful:

- Combines **nested loops** and **live sensor data**
- Great for teaching how robots can **respond to changing environments**
- Ideal for night lights, light-based games, or sensor challenges

stabilization off

`0` `≥ ▼` `50`

loop forever

ambient light

scrolling text **LIGHT** in ⬡ at 15 fps and wait

scrolling text **DARK** in ⬡ at 15 fps and wait

loop until `true`

delay for `2s`

🔨🔧 Debugging Tips

Robot not responding?

- Check your sensor definitions match what you're testing
- Make sure LED colors help you see when programs start
- Try smaller sensor threshold values if nothing triggers

Loops running too fast?

- Add "Wait" blocks to slow things down
- Use smaller time increments for testing

Sensors not working?

- Check that sensor values are within expected ranges
- Test with obvious changes (bright flashlight, shake vigorously)

Motors not moving correctly?

- Check motor power values (0-255 range)

- Make sure stabilization is set correctly for your challenge

- Test with simple forward movement first

Display text not showing?

- Check text length - keep messages short

- Make sure display duration is long enough to read

- Try changing LED colors to confirm program is running

General troubleshooting:

- Start simple - test one feature at a time

- Use LED colors to track program progress

- Check battery level - low power affects sensors

- Reset your robot if it becomes unresponsive