Follow Astra — setup guide

Person follow for the Sanbot Nano using its Orbbec Astra 3D depth camera · version 0.2.8 (13)

> **Safety first.** Follow Astra drives the robot towards people. Keep an eye on it while it follows, use it on a clear floor away from stairs, and keep children and pets out of its way. Tap **Stop**, say “stop”, or press the robot’s emergency stop at any time.

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1. What you need

- **A Sanbot Nano** with its 3D depth camera (the Orbbec Astra the motion games use), switched on, awake and on your Wi-Fi.
- **Wi-Fi with internet** for voice control. Follow Astra uses Google speech recognition and Google text-to-speech on the robot. Following with the on-screen buttons works without internet.
- **One way to install it:**
  - the My Sanbot remote (computer app, or iPhone, iPad and Mac app) with **OpenSDK Proxy 1.3.85 or later** on the robot — included in the My Sanbot robot software pack; or
  - a Windows, Mac or Linux computer with Android’s free platform tools (`adb`).
- **Room to move:** a clear area of a few metres in front of the robot.

Follow Astra installs alongside Sanbot Human Follow (the face-camera follow in the robot pack). You can keep both; only one should be open at a time.

2. Install from My Sanbot (easiest)

1. Connect My Sanbot to the robot as usual (status badge shows **Live**).
2. Open **Software** and tap **Check for updates**. The list shows apps with an update and robot apps you don’t have yet.
3. Find **Follow Astra** and tap **Install**. The robot downloads it (about 38 MB) and opens Android’s installer on its screen.
4. **Tap Install on the robot’s screen.** Not next to the robot? In the computer app press **Software** → **Open robot screen** (scrcpy) and click Install there.
5. The robot shows *Installing…* for up to a few minutes. Tap **Done** when it finishes.

> If the robot says **Install blocked**, tap **Settings** in that message, turn on **Unknown sources**, then tap Install again.

3. Install by hand from a computer

Get the app and the tools

1. Download the Follow Astra APK from brien.com.au/apps/sanbot-follow-astra.html (file `followastra-0.2.8.apk`).
2. Install Android's platform tools from developer.android.com/tools/releases/platform-tools, and open a terminal (PowerShell on Windows) in the folder with `adb` and the APK.

Connect to the robot

1. On the robot, turn on developer mode: **Settings** → **About**, then tap **Robot Version** seven times.
2. Connect a USB cable from your computer to the robot's head port, *or* connect over Wi-Fi (Wi-Fi debugging must be on — the My Sanbot computer app can turn it on):

   ```
   adb connect <robot-IP>:5555
   ```

3. Check the robot is listed. Accept the "Allow USB debugging?" prompt on the robot if it appears.

   ```
   adb devices
   ```

Install and open

```
adb push followastra-0.2.8.apk /data/local/tmp/fa.apk
adb shell pm install -r /data/local/tmp/fa.apk
adb shell rm /data/local/tmp/fa.apk
adb shell am start -n au.com.brien.followastra/.FollowAstraActivity
```

The install can take **2 to 7 minutes** on the Nano — leave it until it prints `Success`. This is more reliable on the Nano than `adb install`. Restarting the robot first makes it quicker.

4. First start on the robot

1. Close anything else using the 3D camera: Orbbec games, Qihan's Follow, or ROS Bridge's body camera stream.
2. Open **Follow Astra** from the robot's home screen or app list.
3. If Android asks whether Follow Astra may use the USB device (the Astra camera), tick **Use by default for this USB device** and tap **OK**. Ticking it stops the question coming back.
4. Wait for **"Astra ready — stand in front of the robot"** on the screen.
5. Check the version in the corner reads **v0.2.8 (13)**.
6. Tap **Detect** and stand about 1.5 m in front, facing it. It should say **"I see you."** and show where you are, for example "You are on my LEFT · 1.62 m away". Detect never moves the robot, so it's a safe first check.

5. Following you

1. Stand about **1.5 metres** in front of the robot, facing it, with your head and body in view.
2. Tap **Start follow** or say **"follow me"**.

3. When it says **“I see you. Following you.”**, walk slowly. It follows about 1 to 1.5 metres behind.
4. To stop, tap **Stop** or say **“stop”**. It replies “Follow is off. Say follow me whenever you’d like me to come along.”

What you’ll notice

- Closer than about a metre it stays put and only turns to face you. It never reverses.
- When you step to one side it pauses, turns a little towards you, and carries on. Small sideways moves (about 15 cm) are ignored.
- It only locks on to a real person (head and body). Once it follows you, people walking past are ignored.
- If you leave its view to the side it turns once after you. If it still can’t see you it stops and says **“I lost you. Please step in front of me.”** Step back in front and it picks you up again.
- If its own sensors see an obstacle it says **“Something is in my way.”** It won’t drive forward, but still turns to face you.

6. Talking to it

No wake word: it listens while the app is open and **Google listening** is ticked.

Say	What happens
“follow me”	Start following
“stop”, “stay there”	Stop following
“turn left” / “turn right”	Turn 45°
“turn left 30 degrees”, “turn right ninety”	Turn that much (5° to 180°)
“a little left” / “a little right”	Turn 15° (“twice” doubles any turn)
“turn around”, “I’m behind you”	Turn 180°
“I’m on your left” / “I’m on your right”	Turn 60° that way
“follow my voice”	Follow, and if it loses you, turn towards your voice
“I’m here”	Turn towards your voice if it heard where you are
“hurry up” / “slow down”	Follow faster or slower (three speeds; it remembers)
“can you see me?”	Says whether it can see you and where
“speech off” / “speech on”	Turn its spoken replies off or on

After any turn while following, it locks on to whoever is in front of it.

7. The screen

- **Left — map from above.** The white dot is the robot; teal is the person it follows, grey is anyone else. Rings mark 1, 1.5, 2.5 and 3.5 m. It’s a mirror for you facing the robot: step to your right and your dot moves right.

- **Right — status** and where it sees you, plus the buttons **Detect**, **Start follow**, **Stop** and **Close**.
- **Speech** turns spoken replies on or off. **Google listening** turns voice control on or off.
- **Swap left/right** — leave this off. It is only for a robot whose camera reports left and right the other way round (it turns away from you after every step).

8. If something goes wrong

What you see	What to do
“No Astra camera found on USB”	Another app is using the 3D camera — an Orbbec game, Qihan’s Follow, or ROS Bridge’s body camera stream. Close it and reopen Follow Astra. If it persists, restart the robot.
“USB permission denied for the Astra — tap OK when asked”	Close and reopen Follow Astra, and tap **OK** on the USB question (tick “Use by default”).
It never says “I see you”	Stand 1–2 m away, facing it, in clear view from head to waist. Very close, side-on or half out of view doesn’t count as a person.
It keeps losing you when you turn	Move a little more slowly; it turns in small steps.
It turns away from you after each step	Tick **Swap left/right** on the screen and try again.
It doesn’t respond to voice	Check **Google listening** is ticked and the robot has Wi-Fi with internet. Speak clearly. (Google sometimes hears “right” as “light”; Follow Astra understands both.)
“Something is in my way”	Its sensors see an obstacle. Clear the way; it still turns to face you.
Install never finishes, or “Install blocked”	Wait up to 7 minutes, or restart the robot and try again. For “Install blocked”, turn on **Unknown sources** in the robot’s Settings.

9. Update or remove it

- **Update:** in My Sanbot open **Software** → **Check for updates** and tap **Update** on Follow Astra, then tap Install on the robot. By hand, repeat section 3 with the new APK; your settings are kept.
- **Remove:** from a computer connected as in section 3:

```
adb uninstall au.com.brien.followastra
```

Help and privacy

Use the contact form at brien.com.au/contact.html and choose **My Sanbot**. Everything runs on the robot; while the app is open and Google listening is on, speech is sent to Google for recognition.

Follow Astra code: MIT licence. The Orbbec Astra SDK and its body tracking remain Orbbec’s; the Sanbot OpenSDK remains Qihan’s. Package `au.com.brien.followastra`.