

THE BUILD GUIDE · AARON PARTON

BUILD YOUR OWN GARMIN WATCH FACE.

No coding experience needed. You describe what you want on your wrist, Claude writes the code, and you put it on your watch. This is the exact setup I used to build SwellVision, my surf watch face, from zero.

Nine laps, blank laptop to your own watch face. About 90 minutes the first time. Everything is free except a Claude plan. **Follow it top to bottom.**

START HERE · EVERYTHING YOU'LL NEED IS LINKED HERE

THE LINKS



WATCH FIRST · THE WHOLE PROCESS, FAST

HOW TO BUILD A GARMIN WATCH FACE USING AI

The quick version of this guide on video. Watch it once so you know where you're heading, then come back and follow the steps.

youtu.be/CUF30HzufSw

THE STARTER TEMPLATE (START YOUR BUILD HERE)



A working watch face with plain-English comments, plus instructions that tell Claude how to build it.

github.com/aaronparton2-sketch/garmin-watchface-starter

SWELLVISION SOURCE CODE



My full surf watch face: live swell, wind, water temp and first light. Pull it apart or build on it.

github.com/aaronparton2-sketch/swellvision

SWELLVISION ON THE GARMIN STORE (FREE)



Just want the surf watch face on your wrist? Install it straight from the Connect IQ Store.

apps.garmin.com/en-US/apps/5859e191-2af1-4b10-b913-388b09a9985f

FROM THIS **TO THIS**



Lap 7: the starter template running in Garmin's simulator. Date, time, steps, battery, heart rate.



Where it can go: SwellVision, live surf data from wherever I'm standing. Built the same way.

YOUR OWN WATCH FACE

Showing exactly what you care about: surf, weather, training numbers, the footy score, anything.

BUILT BY TALKING

You type what you want in plain English. Claude writes the code, fixes its own errors and explains what it did.

ON YOUR REAL WATCH

Copied over a USB cable in two minutes. No store needed, no approval, just yours.

OPTIONAL: IN THE STORE

Publish it free (or paid) on the Garmin Connect IQ Store so anyone can install it.

PICK YOUR ROUTE • READ THIS FIRST

TWO WAYS TO DO THIS

OPTION A • FOLLOW THIS GUIDE

EVERY CLICK, IN ORDER, WITH SCREENSHOTS

Recommended for your first watch face. Nine laps, each with a goal, the exact steps and a check at the end so you know it worked before moving on.

OPTION B • LET CLAUDE DRIVE

Stuck, or want a second set of eyes?

Open claude.ai, attach this PDF, and say: *"I want to build my own Garmin watch face. Walk me through this guide one step at a time for my computer. Ask me whether I'm on Windows or Mac first, wait for me to confirm each step worked, and help me fix anything that goes wrong."*

HOW IT FITS TOGETHER · THE WHOLE THING IN ONE LINE

LAPTOP TO WRIST

01	02	03	04	05
VS CODE	CLAUDE CODE	GARMIN SDK	SIMULATOR	YOUR WATCH
Your workshop. Where the watch face files live.	Your builder. Lives inside VS Code and writes the code.	Garmin's toolkit. Turns the code into a watch face.	A fake watch on your screen, for testing.	Copy it across with a USB cable. Done.

BEFORE YOU START · GATHER THESE

WHAT YOU NEED

A GARMIN WATCH	Most Garmins from the last few years work (Forerunner, Fenix, Epix, Venu, Vivoactive, Instinct). Check yours here .	ESSENTIAL
A COMPUTER	Windows or Mac. This guide shows Windows, with the Mac difference called out wherever there is one.	ESSENTIAL
 CLAUDE PLAN	Claude Pro (US\$20 a month, or US\$17 a month paid yearly) or higher. Claude Code, the part that writes your code, needs a paid plan. claude.com/pricing	ESSENTIAL
 GARMIN ACCOUNT	The same login you use for the Garmin Connect app. You'll sign in to Garmin's tools with it.	ESSENTIAL
USB DATA CABLE	The cable that came with your watch. It must carry data , not just charge. Only needed for the last step (putting it on your watch).	ESSENTIAL
90 MINUTES	Most of it is waiting for downloads. Your second watch face needs no setup at all.	ONCE

You are not learning to code. Your job is to say what you want on your watch and check the result. Claude writes it, runs it, reads the errors and fixes them. If you can write a text message, you can do this.

NINE WORDS, **EXPLAINED**

VS CODE	Free app from Microsoft for working with code files. Think of it as Microsoft Word, but for code. Everything happens in here.
EXTENSION	An add-on for VS Code, like an app on your phone. You'll install two: one from Garmin, one from Anthropic (Claude).
CLAUDE CODE	Claude, but able to read and change the files on your computer. It's the one writing your watch face.
SDK	"Software Development Kit". Garmin's free toolbox that turns code into something a watch can run.
MONKEY C	The language Garmin watch faces are written in. You won't write it; Claude will.
SIMULATOR	A pretend Garmin watch on your screen. You test here before touching your real watch.
REPO (GITHUB)	A folder of code shared online. You'll download mine as a ZIP to start from.
DEVELOPER KEY	A private file that "signs" your watch face so the watch trusts it. Make it once, keep it, never share it.
.PRG FILE	The finished watch face, ready to copy onto your watch.

NINE LAPS TO **YOUR WRIST**

01 Install VS Code

02 Install Java

03 Install Garmin's SDK

04 Add the Garmin extension

05 Add Claude Code

06 Download the starter

07 Run it in the simulator

08 Tell Claude what you want

09 Put it on your watch

+ Publish to the store (optional)

INSTALL VS CODE ESSENTIAL

GOAL: VS Code open on your computer

VS Code is where your watch face lives and where Claude does its work. It's free and made by Microsoft.

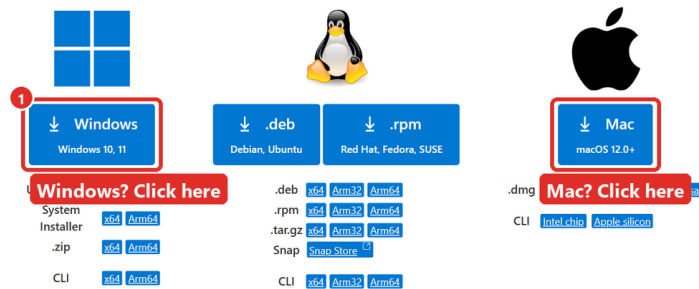
DOWNLOAD

MICROSOFT · FREE

code.visualstudio.com/download

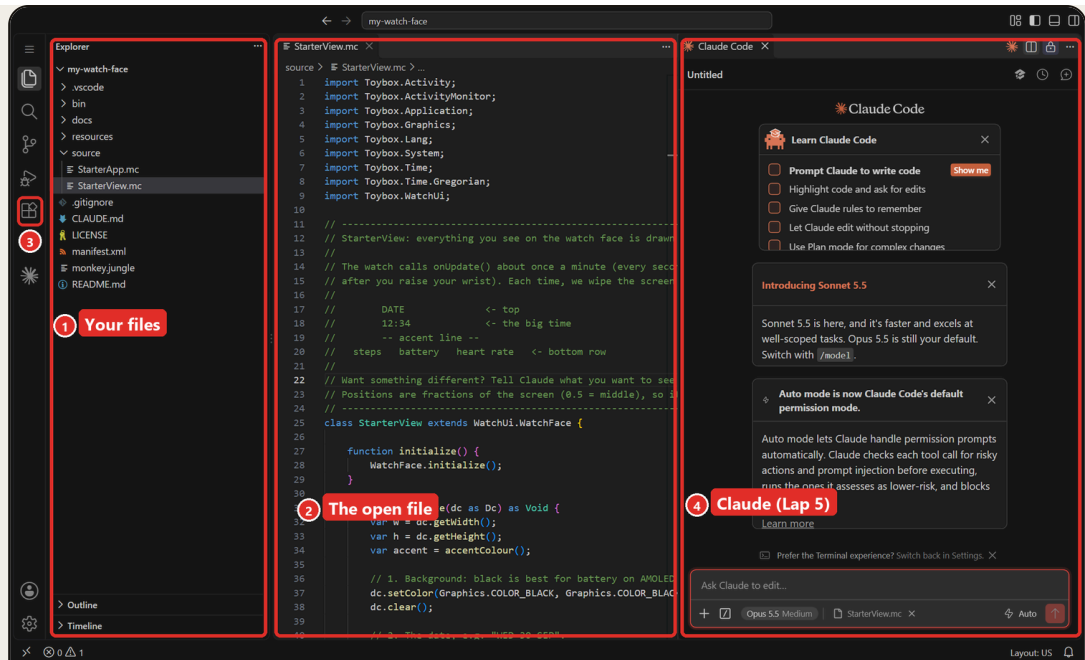
Download Visual Studio Code

Free and built on open source. AI agents, Git, debugging, and extensions included.



CLICK the big button for your computer. Windows: the blue Windows button. Mac: the Mac button.

- 1 Open code.visualstudio.com/download and click the button for your computer (circled above).
- 2 **Windows:** open the downloaded file (it's in your **Downloads** folder, called something like `VSCodeUserSetup-x64.exe`). Click **I accept the agreement** → **Next**.
- 3 On the "Select Additional Tasks" screen, tick **Add "Open with Code" action** (both boxes) and make sure **Add to PATH** is ticked. Then **Next** → **Install** → **Finish**.
- 4 **Mac:** open the downloaded .zip, then drag **Visual Studio Code** into your **Applications** folder. Open it from there.



YOUR MAP of VS Code. You only need four things: **1** your files, **2** the file you have open, **3** the Extensions button, **4** the Claude panel (you add it in Lap 5).

CHECK IT WORKED

VS Code opens and shows a "Welcome" page. Close the Welcome tab; you won't need it.

INSTALL JAVA

ESSENTIAL

GOAL: Garmin's builder can run on your computer

Garmin's tool that builds your watch face runs on **Java**. You won't use Java yourself, it just has to be installed. Skip this lap if you already have it (Lap 4 checks for you).

DOWNLOAD

ADOPTIUM · FREE

adoptium.net/temurin/releases/?version=21

Filter Releases

1 Set Operating System to your computer 2 click the MSI download (Mac: the .pkg).

- 1 Open the link. Check **Version** says **21 - LTS** and set **Operating System** to **Windows** (or **macOS**). Then click the **MSI** download (Mac: **PKG**).
- 2 Open the downloaded file and click **Next** through each screen. On the "Custom Setup" screen, make sure **Set JAVA_HOME variable** and **Add to PATH** are both set to install.
- 3 Click **Install** , then **Finish** . Restart VS Code if it was open.

CHECK IT WORKED

Nothing to see yet. Lap 4 runs a check that confirms Java is found.

INSTALL GARMIN'S SDK ESSENTIAL

GOAL: Garmin's toolkit and your watch model downloaded

▲ The SDK is Garmin's toolkit. You get it through a small app called the **SDK Manager**, which downloads the toolkit plus the details of every Garmin watch.

DOWNLOAD

GARMIN · FREE

developer.garmin.com/connect-iq/sdk/

Get the Connect IQ 9.2.0 SDK

Last Updated: August 25, 2026

Install the SDK Manager

1. Download the SDK manager.

Accept & Download for Windows

Windows

Accept & Download for Mac

Mac

1 Scroll down to "Install the SDK Manager" and click **Accept & Download** for your computer.

- 1 Open the link and scroll down past the licence text to **Install the SDK Manager**. Click **Accept & Download for Windows** (or **for Mac**). Clicking it accepts Garmin's free licence.
- 2 **Windows:** the download is a ZIP. Right-click it → **Extract All** → **Extract**. Open the new folder and double-click `sdksmanager.exe`. (If Windows shows "Windows protected your PC", click **More info** → **Run anyway**. It's Garmin's own app.) **Mac:** open the .dmg and drag SDK Manager into Applications.
- 3 The SDK Manager asks you to **Log In**. Use your **Garmin Connect** email and password.
- 4 On the **SDK** tab, click the **download arrow** ↓ next to the newest version (the top row). When it asks "use this as your active SDK?" click **Yes**. (If it doesn't ask, click **Current SDK** next to that version.)
- 5 Click the **Devices** tab. Find **your watch** in the list and click its download arrow. Grab a couple of others you like too; they're small.

File

SDK **3** Devices **Devices tab: get your watch**

Version	Release Date	Size	
Connect IQ 9.2.0	June 9, 2026	177 MB to download	1 Download the newest (top)
Connect IQ 9.1.0	March 11, 2026	177 MB to download	↓
Connect IQ 8.4.1	February 3, 2026	252 MB on disk	X 2 Current SDK
Connect IQ 8.4.0	December 4, 2025	135 MB to download	↓ Then make it current
Connect IQ 8.3.0	September 25, 2025	134 MB to download	↓
Connect IQ 8.2.3	August 12, 2025	134 MB to download	↓
Connect IQ 8.2.2	July 17, 2025	134 MB to download	↓
Connect IQ 8.2.1	June 19, 2025	134 MB to download	↓
Connect IQ 8.1.1	April 1, 2025	105 MB to download	↓
Connect IQ 8.1.0	March 4, 2025	105 MB to download	↓

1 Download arrow on the newest version **2** make it your Current SDK **3** the Devices tab, where you download your watch.

WORTH KNOWING

This is **Connect IQ**, Garmin's free program for watch faces and apps. It is not the "Garmin Connect Developer Program", which is for big companies. If a page asks you to apply for access, you're on the wrong one.

CHECK IT WORKED

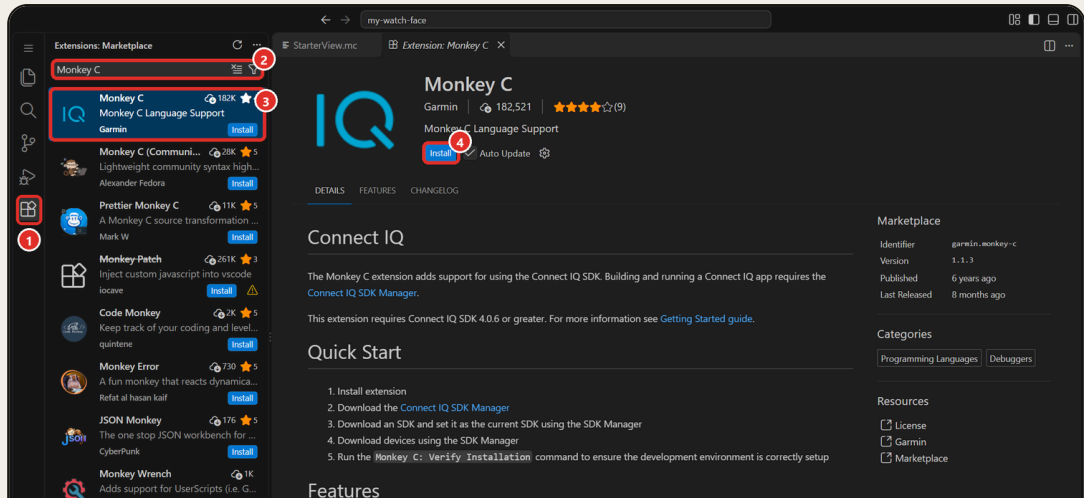
The newest version shows "on disk" with a greyed-out **Current SDK** button next to it, and your watch shows as downloaded on the Devices tab.

ADD THE GARMIN EXTENSION

ESSENTIAL

GOAL: VS Code can build and test Garmin watch faces

The **Monkey C** extension connects VS Code to Garmin's toolkit, so one button builds your watch face and opens the simulator.



1 Extensions button 2 type Monkey C 3 pick the one by Garmin 4 Install

- 1 In VS Code, click the **Extensions** button on the far left (four little squares), or press **Ctrl** + **Shift** + **X** (Mac: **Cmd** + **Shift** + **X**).
- 2 Type **Monkey C** in the search box at the top.
- 3 Click the top result, **Monkey C**, published by **Garmin** (not the "Community" or "Prettier" versions), and click **Install**. If VS Code asks "Do you trust the publisher Garmin?", click **Trust Publisher & Install**.
- 4 Open the **Command Palette**: press **Ctrl** + **Shift** + **P** (Mac: **Cmd** + **Shift** + **P**). A search bar appears at the top. Type **Monkey C: Verify Installation** and press **Enter**.

THE COMMAND PALETTE

You'll use **Ctrl** + **Shift** + **P** a lot. It's VS Code's "do anything" search bar. Type what you want, press Enter.

CHECK IT WORKED

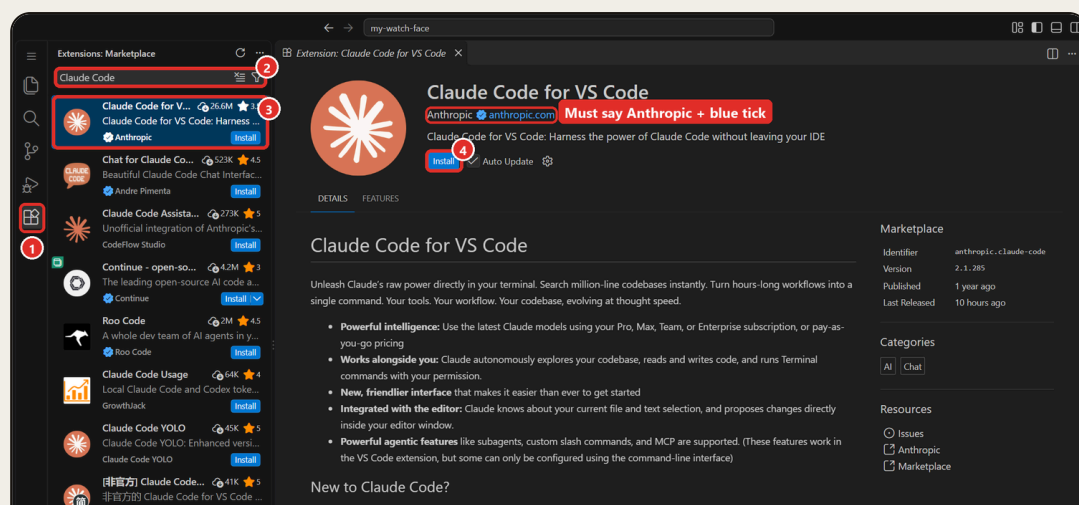
A message in the bottom right says the installation is verified. If it says Java or the SDK can't be found, redo Lap 2 or Lap 3, then restart VS Code.

ADD CLAUDE CODE

ESSENTIAL

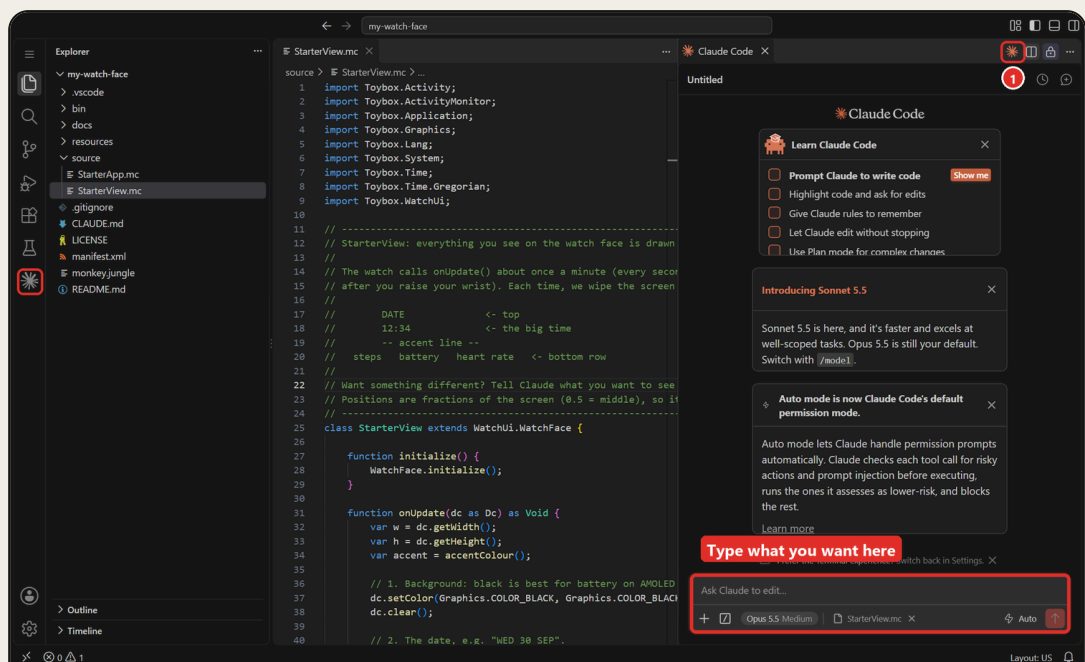
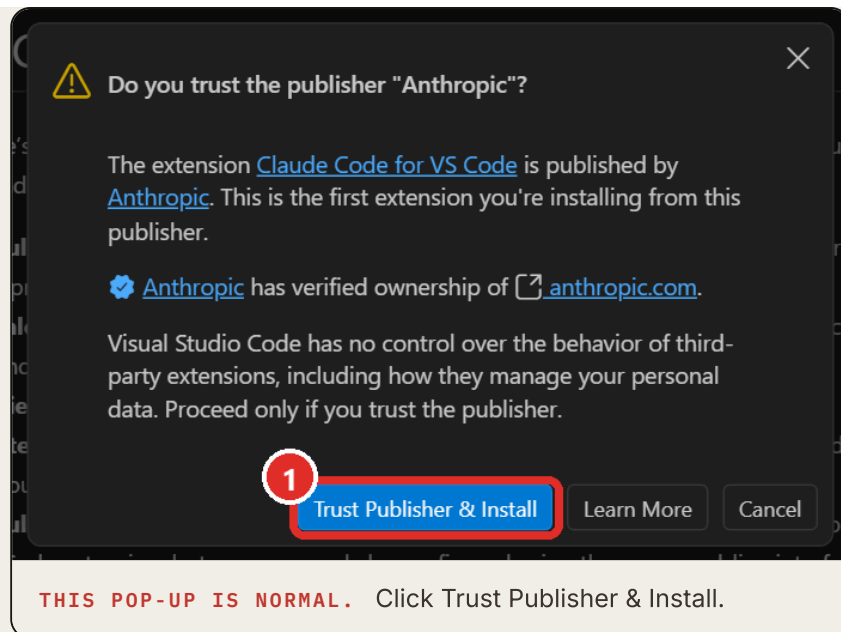
GOAL: Claude living inside VS Code, signed in

✳️ This is the part that writes your watch face. Claude Code can see the files in whatever folder you have open in VS Code, change them, and run Garmin's build for you.



1 Extensions 2 type Claude Code 3 pick the one by Anthropic 4 Install

- 1 Extensions button again (**Ctrl** + **Shift** + **X**). Search **Claude Code**.
- 2 Click **Claude Code for VS Code** by **Anthropic** (it has a blue tick and says **anthropic.com**) → **Install**. There are lots of look-alikes with similar orange logos. Ignore them.
- 3 VS Code asks "Do you trust the publisher Anthropic?" Click **Trust Publisher & Install**.
- 4 An orange **Claude spark icon** appears at the top right of the editor, and in the left sidebar. Click it to open the Claude panel.
- 5 The first time, the panel asks you to sign in. Click the sign-in option for your **Claude.ai account** (Pro or Max). Your web browser opens: log in and click **Authorize**, then come back to VS Code.



- 1 The Claude spark icon opens the panel (it's also in the left sidebar). Type in the box at the bottom like a text message. Close the tip cards with the X; they only show the first time.

HOW CLAUDE "READS YOUR FOLDER"

Claude only sees the folder you've opened with **File → Open Folder**. That's why Lap 6 opens the starter as a folder. Before it changes a file or runs a command, Claude asks you. Read what it wants to do and click **Yes** (or "Yes, don't ask again" for building, which you'll do a lot).

CHECK IT WORKED

The Claude panel shows a message box you can type in. Try: *"Hi, can you see this folder?"*

DOWNLOAD THE STARTER ESSENTIAL

GOAL: a working watch face open in VS Code

Starting from a blank page is where people get stuck. So start from mine: a watch face that already works, with every line explained, and a file called `CLAUDE.md` that tells Claude exactly how Garmin watch faces are built.

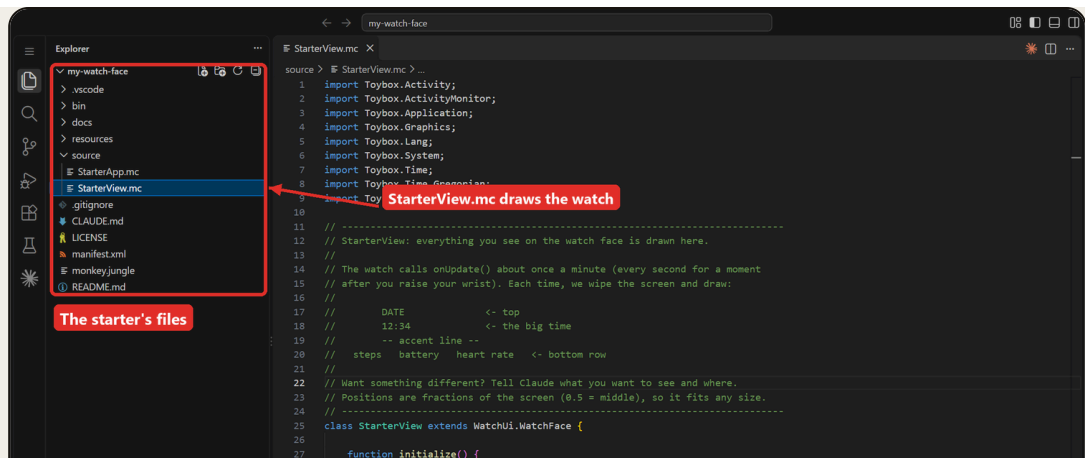
DOWNLOAD

GITHUB · FREE

github.com/aaronparton2-sketch/garmin-watchface-starter

1 Click the green **Code** button 2 click **Download ZIP**. No GitHub account needed.

- 1 Open the link, click the green **Code** button, then **Download ZIP**.
- 2 Go to your **Downloads** folder. Right-click `garmin-watchface-starter-main.zip` → **Extract All** → **Extract**. (Mac: just double-click it.)
- 3 Move the extracted folder somewhere easy, like **Documents**, and rename it to your watch face's name, e.g. `my-watch-face`.
- 4 In VS Code: **File** → **Open Folder...** → pick that folder → **Select Folder**.
- 5 VS Code asks "Do you trust the authors of the files in this folder?" Click **Yes, I trust the authors**.



WHAT YOU SHOULD SEE. The starter's files on the left. StarterView.mc is the one that draws everything on the watch.

CHECK IT WORKED

On the left you can see source, resources, manifest.xml and CLAUDE.md.

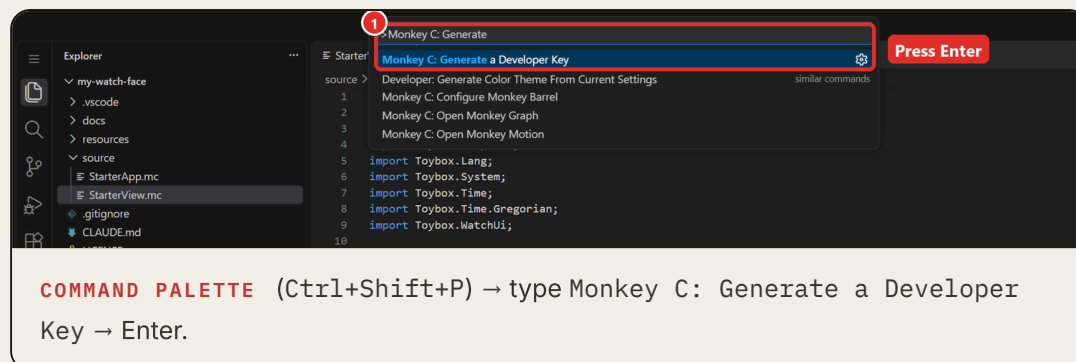
RUN IT IN THE SIMULATOR

ESSENTIAL

GOAL: see the watch face on a pretend watch

Two things: make your developer key (once, ever), then press play.

A. Make your developer key



1 Press **Ctrl** + **Shift** + **P**, type **Monkey C: Generate a Developer Key**, press **Enter**.

2 It asks where to save it. Make a new folder in Documents called **garmin-keys** and save it there. VS Code remembers where it is.

KEEP THIS FILE SAFE

Your developer key proves a watch face is yours. Back it up, and never share it or upload it. If you publish to the store later, updates must be signed with the **same** key.

B. Run it

1 Click **Run** in the top menu → **Run Without Debugging** (or press **Ctrl** + **F5**).

2 A list of watches appears at the top. Pick **yours** (it's in the list if you downloaded it in Lap 3).

3 Wait about 20 seconds. Garmin's **simulator** opens with your watch and the watch face on it.



IF YOUR WATCH ISN'T IN THE LIST

Ask Claude: "Add my Garmin [your model] to manifest.xml." Then run again.

CHECK IT WORKED

You see the watch face in the simulator. That's a working Garmin watch face you built. Everything from here is making it yours.

TELL CLAUDE WHAT YOU WANT

ESSENTIAL

GOAL: turn the starter into your watch face

Open the Claude panel and describe changes in plain English, **one at a time**. After each one, run it again (**Ctrl** + **F5**) and look. Small steps, and you'll never get lost.

SAY THIS FIRST, EVERY NEW WATCH FACE

Read CLAUDE.md and the files in this folder, then explain in plain English how this watch face works. I have no coding experience. After that, ask me what I want my watch face to show.

EASY WINS

change the look

01 Colours

Make the time orange and the labels light grey. Keep the background black.

02 Name

Rename the watch face to "Your Name Watch" everywhere it shows up.

03 More data from the watch

Add the sunrise and sunset times under the time, and today's calories next to steps.

LIVE DATA

from the internet, like SwellVision

04 Weather

Add the current temperature and rain chance for where I am, from the free Open-Meteo API. Use a background service that refreshes every 30 minutes, like the SwellVision repo does.

05 Surf

Show the swell height, swell period, wind speed and wind direction for my location from the Open-Meteo Marine API. Use github.com/aaronparton2-sketch/swellvision as the reference.

06 Anything else

I want my watch face to show [the AUD to USD exchange rate / my team's footy score / the next train from my station]. Find a free API for it, tell me if it needs a key, and build it in step by step.

WHEN SOMETHING BREAKS

It will, and that's normal. Don't try to fix it yourself. Tell Claude: *"It didn't build, here's what it says"* and paste the red error text, or: *"It runs but the time overlaps the date on my Fenix 7."* Claude reads the error and fixes it.

PRO TIP

Want a starting design? Screenshot a watch face you like (or sketch one on paper and photograph it), drag the image into the Claude panel and say: *"Make mine look like this, with [your data] instead."*

PUT IT ON YOUR WATCH

ESSENTIAL

GOAL: your watch face on your real wrist

- 1 Command Palette (**Ctrl** + **Shift** + **P**) → **Monkey C: Build for Device** → pick your watch → pick a folder to save it in (Desktop is fine). You get a file ending in `.prg`.
- 2 Plug your watch into the computer with the **USB data cable**.
- 3 **Windows:** open **File Explorer** → **This PC**. Your watch shows up as a device. Open it → Internal Storage (if shown) → GARMIN → APPS.
- 4 **Mac:** newer Garmins don't show up in Finder on their own. Install the free app [OpenMTP](#), open it with the watch plugged in, and go to GARMIN → APPS.
- 5 Copy your `.prg` file into the APPS folder.
- 6 Unplug the watch. On the watch, open your watch face list (on most Garmins: hold the middle-left **UP** button, or long-press the screen, then **Watch Face**), scroll to yours and select it.

THE WATCH DOESN'T SHOW UP ON YOUR COMPUTER?

Your cable is probably charge-only. Try the original Garmin cable or a different one. This one catches everybody.

LIVE DATA STUCK ON "WAITING FOR DATA"?

Keep your phone nearby with Bluetooth on and the Garmin Connect app open, and give it 5 to 10 minutes. Still stuck? Tell Claude: *"It works in the simulator but my real watch never gets data. Check the (:background) annotations."* That was the biggest bug I hit building SwellVision: the simulator doesn't need them, a real watch does.

CHECK IT WORKED

Look down. That's your watch face, on your watch, built by you.

BONUS



2 HRS +
REVIEW

PUBLISH TO THE STORE

OPTIONAL

GOAL: anyone with a Garmin can install it

- 1 Ask Claude: *"Get this ready for the Connect IQ Store: give it a new unique ID, add all the watches it can support to manifest.xml, and build the store package."* (That's **Monkey C: Export Project**, which makes a .iq file.)
- 2 Make a **500 × 500** icon (no black background, no text) and take 1 to 3 screenshots from the simulator or photos of your watch.
- 3 If it uses your location or the internet, you need a simple **privacy policy** on a public web page. Claude can write it.
- 4 Go to apps-developer.garmin.com, sign in with your Garmin account, accept the developer agreement, and click **Upload an App**.
- 5 Upload the .iq, fill in the name, type (Watch Face), description (plain text), icon, screenshots and privacy link, and submit.
- 6 Garmin reviews it, usually in **2 to 5 business days**. You get an email when it's live.

TROUBLESHOOTING

WHAT YOU SEE	WHAT TO DO
"Java not found" or "monkeyc is not recognised"	Install Java (Lap 2), then fully close and reopen VS Code. Run Monkey C: Verify Installation again.
"SDK not found"	Open the SDK Manager and set the newest SDK as current (Lap 3).
My watch isn't in the list when I run	Download it in the SDK Manager's Devices tab, and ask Claude to add it to <code>manifest.xml</code> .
"Could not find a developer key"	Redo Lap 7 part A. If you moved the key file, generate the path again in Settings → search "Monkey C developer key".
Red error text when building	Copy it, paste it into the Claude panel, say "fix this". Don't edit code yourself.
Text is cut off at the edges of a round watch	"Keep everything inside the round screen on my [model], nothing touching the edges."
The watch doesn't appear on my computer	Charge-only cable. Swap it. On Mac, use OpenMTP (Lap 9).
Watch face not in the list on the watch	Check the <code>.prg</code> is directly inside GARMIN/APPS, not a subfolder, and that you built for your exact model.
"Waiting for data" forever on the real watch	Phone nearby with Bluetooth on, wait 10 minutes, then ask Claude to check the <code>(:background)</code> annotations.
Claude says it can't see my files	Open the folder with File → Open Folder , not just a single file.

YOUR TURN

BUILD THE THING YOU'D CHECK FIRST

Surf, the weather at your trailhead, your training load, the exchange rate before a trip. Whatever you grab your phone for in the morning can live on your wrist instead.

START FROM THE TEMPLATE

`github.com/aaronparton2-sketch/garmin-watchface-starter`

SwellVision source: `github.com/aaronparton2-sketch/swellvision`

SwellVision on the store: `apps.garmin.com` · SwellVision

The video: `youtu.be/CUF30HzufSw`

Built by Aaron Parton · Mycelium AI · `myceliumai.com.au` · `youtube.com/@aaron-parton`