

Raspberry Pi DS1307 RTC Module Setup

This repository provides a step-by-step guide to set up a DS1307 Real Time Clock (RTC) module on a Raspberry Pi.

Requirements

Hardware:

- Raspberry Pi (any model with I2C support)
- DS1307 RTC Module
- Jumper wires

Software:

- Raspberry Pi OS (Bookworm or Bullseye recommended)
- I2C tools
- Python 3
- SMBus library

Installation Steps

1. Enable I2C on Raspberry Pi

Run:

```
sudo raspi-config
```

Navigate to:

Interfacing Options → I2C → Enable

2. Install Required Packages

```
sudo apt update
```

```
sudo apt install i2c-tools python3-smbus
```

3. Check if RTC is Detected

```
sudo i2cdetect -y 1
```

If detected, you will see `68` in the output grid.

4. Load RTC Kernel Module

```
sudo modprobe rtc-ds1307
```

5. Add RTC to Boot Configuration

Edit `/boot/config.txt`:

```
dtoverlay=i2c-rtc,ds1307
```

6. Remove Fake Hardware Clock

```
sudo apt-get -y remove fake-hwclock  
sudo update-rc.d -f fake-hwclock remove
```

7. Sync System Time with RTC

On boot, the Raspberry Pi will read the time from the RTC.

You can manually sync with:

```
sudo hwclock -r  
sudo hwclock -w
```

Python Dependencies

- Python 3.x
- smbus (`sudo apt install python3-smbus`)

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