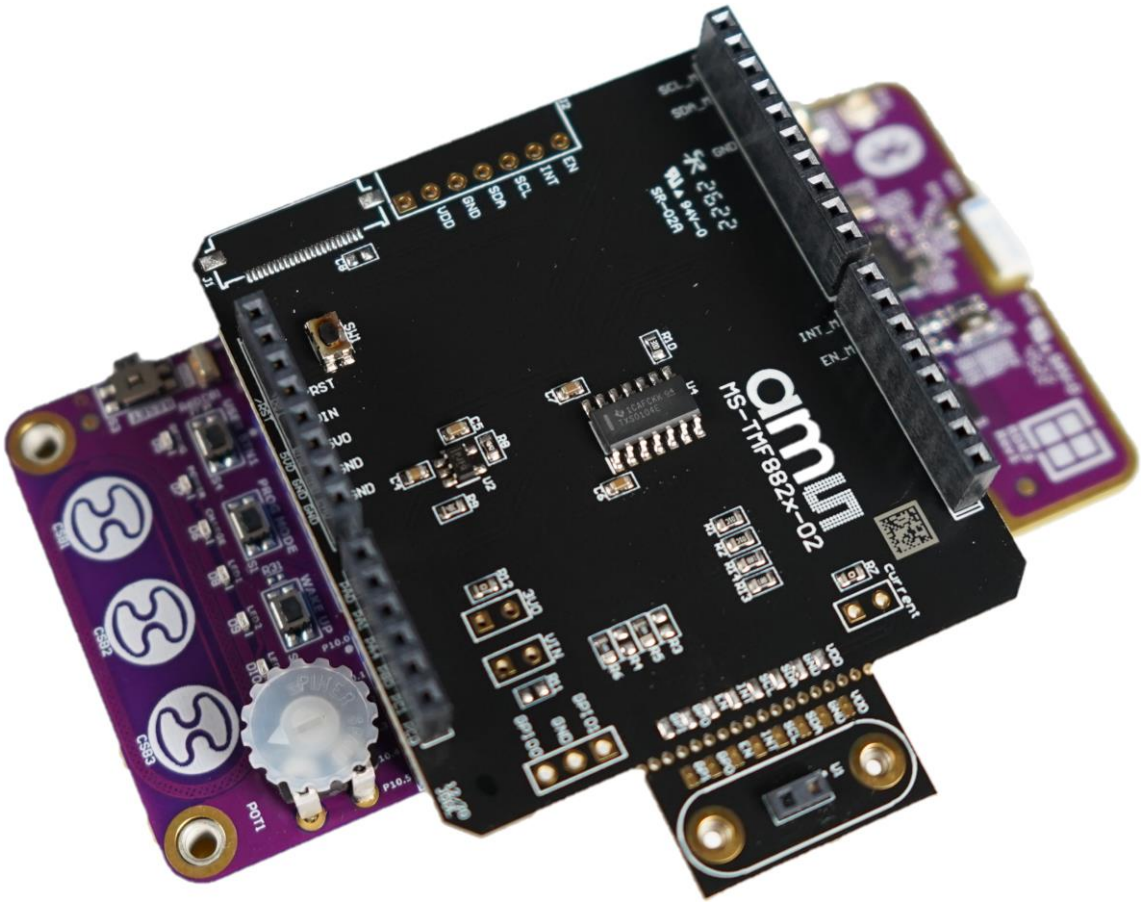
Quick Start Guide

RDK3 and AMS OSRAM Evaluation Kit for TMF882x



Versions

Version	Date	Rationale
1.0	October 30, 2023	First release. Autor: KOA
1.1	November 25, 2025	PSOC 64 disclaimer added. Author: KOA

Legal Disclaimer

The evaluation board is for testing purposes only and, because it has limited functions and limited resilience, is not suitable for permanent use under real conditions. If the evaluation board is nevertheless used under real conditions, this is done at one's responsibility;
any liability of Rutronik is insofar excluded.

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Introduction

The purpose of this document is to describe the solution of Rutronik, which allows using the RDK3 development board to test the TMF8828 configurable 8x8 multi-zone Time-of-Flight Sensor, which is part of AMS OSRAM Arduino Uno Shield Evaluation Kit.

Overview

AMS OSRAM TMF8828 is a configurable 8x8 multi-zone Time-of-Flight sensor consisting of two parts: an infrared light emitter (VCSEL) and a high speed photodiode (SPAD).

The infrared light travels to the object, is reflected from it and is captured by the photodiode. The distance to an object is determined by the time it takes light to reflect.

Rutronik offers a hardware and software solution that allows you to obtain and visualize data measured by TMF8828 sensor. The solution architecture is shown in the Figure 1.

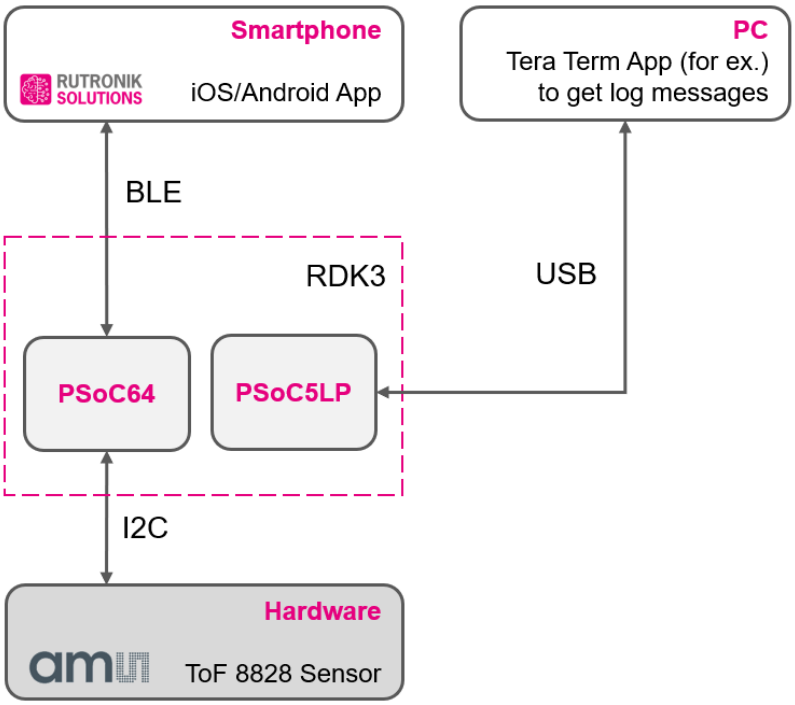

Figure 1. Block diagram of solution

A block diagram of the software for PSoC64 is shown at the Figure 2.

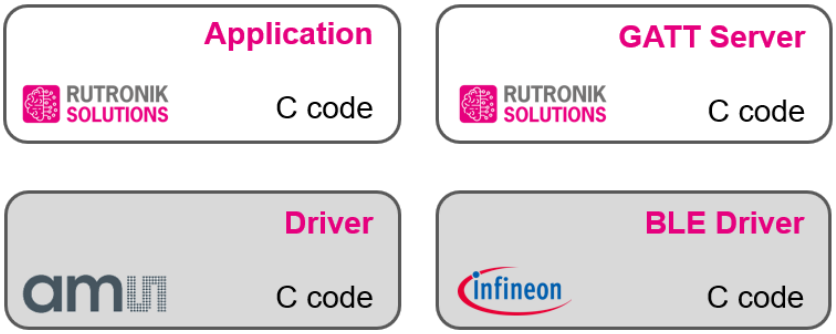

Figure 2. Block diagram of software

AMS OSRAM Arduino Uno Shield Evaluation Kit is connected to one of the development boards from Rutronik (RDK2, RDK3). The board connects to a smartphone via Bluetooth (RDK3) or to a computer via USB (RDK2). Data from the sensor is clearly displayed in a special application.

How to Use a Solution

Getting Started

1. Connect AMS OSRAM Evaluation Kit to RDK3 board via Arduino headers.

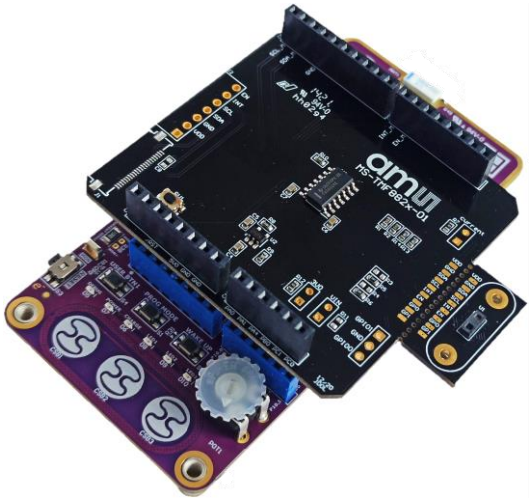

Figure 3. RDK3 and AMS OSRAM Arduino Uno Shield Evaluation Kit connected

Infineon has discontinued the PSOC™ 64 Secured MCU product line. As a result, the CYB06447BZI-BLD53 MCU used in the RDK3 is not recommended for new designs. The Infineon CY8C6347BZI-BLD53 MCU may be considered a suitable alternative.

2. Be sure the correct BSP is installed on the RDK3. Contact RSS to receive the source code.
3. Power the RDK3 by using a USB cable or an external battery (see user manual of the RDK3 for more information).
4. Install **RSS** application at your smartphone. Please contact Rutronik to get it.
5. Turn on the Bluetooth at the smartphone.
6. Run the app, select RDK3. Then select AMS OSRAM Evaluation Kit and press **Live sensor data**.

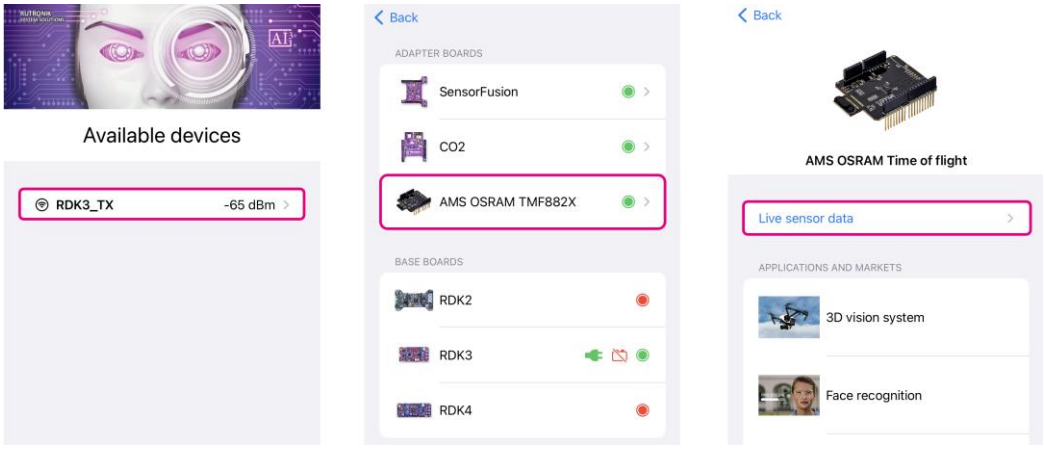

Figure 4. Getting access to live sensor data

Reading Sensor Data

By default, the sensing part of the sensor (SPAD) operates with a resolution of 3x3 pixels, that is, object position is determined by 9 pixels.

In RSS app, the distance from the object to the SPAD pixels as it changes over time is illustrated by graphs at the top of the screen.

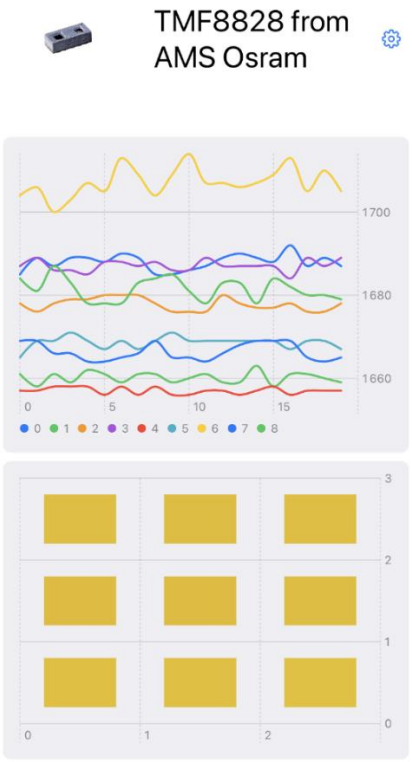

Figure 5. Main screen with data from TMF8828 (3x3 mode)

Each curve has its own number (0-8) and shows how the distance from the object to one of the nine pixels changed over time. Time is counted along the horizontal axis, and the distance from the object to the pixel in mm is counted along the vertical axis.

At the bottom of the screen there are pictograms of nine pixels, the colour of which shows the conditional distance to the object in real time: grey - the object is not detected, green - the object is far away, red - the object is close, yellow - the object is at a medium distance.

Setting the distance, which will be determined by the system as far one and marked green, can be done in **Configuration** window (Figure 6).

Figure 6. Configuration window

Here you can also switch the sensor resolution to 8x8 pixels mode. Once switched, the main screen displays only real-time sensor information (64 graphs on a smartphone screen would be difficult to read).

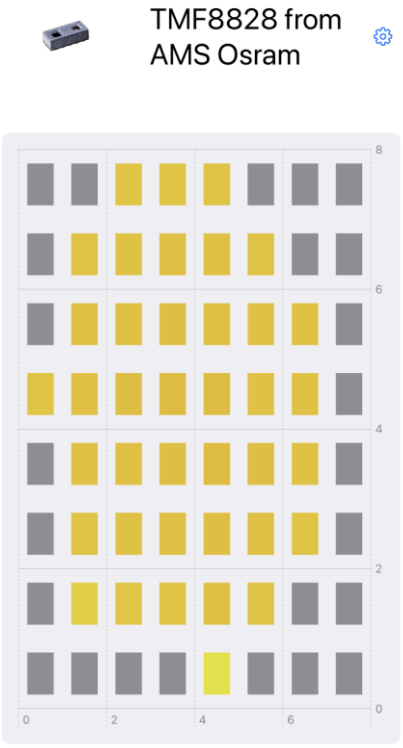

Figure 7. Main screen with data from TMF8828 (8x8 mode)