Raykha S8 Sensor Module

Raykha S8 is line follower sensor based on TCRT5000 IR sensors. It provides eight channels of measurements with separate digital and analog outputs. It has relatively good resolution, consumes considerably less power and is a product of the local electronics shop called Aptinex.

Alternatives

Image-recognition options

It is possible to detect the line with camera module like OV7670 with the image recognition libraries of Arduino environment. The main disadvantages in using this method are the need of lot of training time for the image recognition process and uncertainty of output against changing light conditions. Furthermore, image-processing task would require high processing powers, which would push the ATMEGA 2560 to its limits, resulting in high response times.

Separate TCRT5000 Modules arranged in an array

This would require more space for the same task and poses difficulties in connecting them to the base.

Making a sensor module from scratch

A custom-built sensor module would allow us to place our sensors at desired positions and customize the resolution. However, given the condition in the country, a shortage in electronic components in the local market is expected and with the safety risk of importing PCBs and sensors, we opted for a pre-built sensor module with sufficient resolution and channels.