Wireless Networking [ET4394]

GNU Radio Project

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TUDelft

Learning objectives (LOs)

- **LO1:** To understand the objectives of the GNURadio project assignment

- **LO2:** To recap understanding of GNURadio

Project Assignment

Design, implement in GNURadio and test simple detector for digital television channels (DVB-T)

DVB-T Channels

Table 1. DVB-T MUX Operator & Frequency in Delft [2]

MUX Operator	Tx Location	Center Freq. (MHz)	Channel No.	Bandwidth (MHz)	ERP (kW)
RTS Bouquet 1	Delft	722	52	8	1
NTS1 Bouquet 2	Delft	698	49	8	1
NTS2 Bouquet 3	Delft	762	57	8	1
NTS3 Bouquet 4	Delft	498	24	8	1
NTS4 Bouquet 5	Delft	522	27	8	1

Source: Rizqi Hersyandika (4410106)

Signal Detector (1/2)

Input signal ── FFT ── $[\ldots]^2$ ── Average FFT bin ── Threshold ── Decision
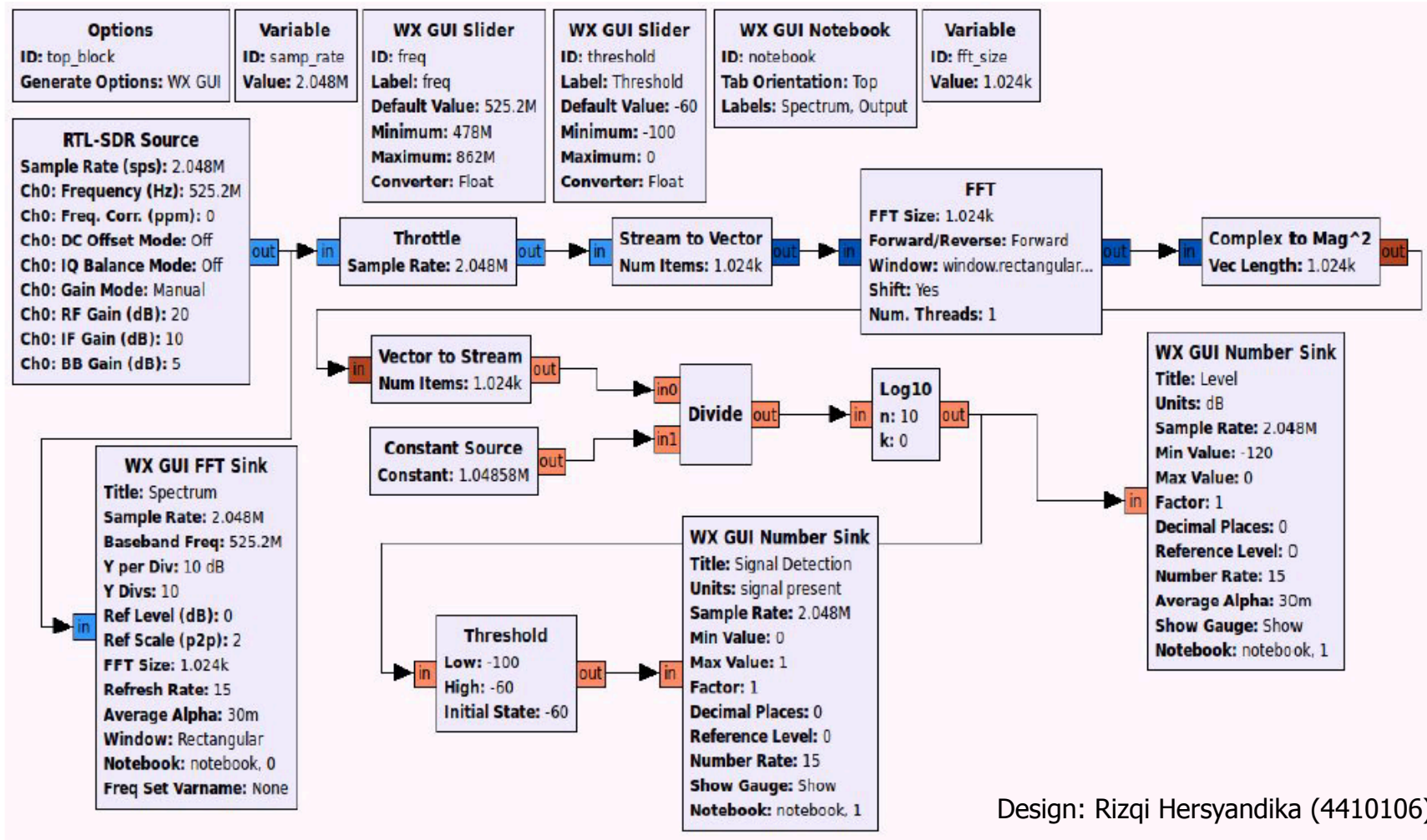
Source: Rizqi Hersyandika (4410106)
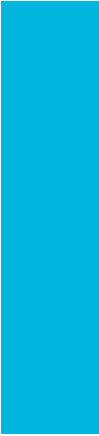
Signal Detector (2/2)
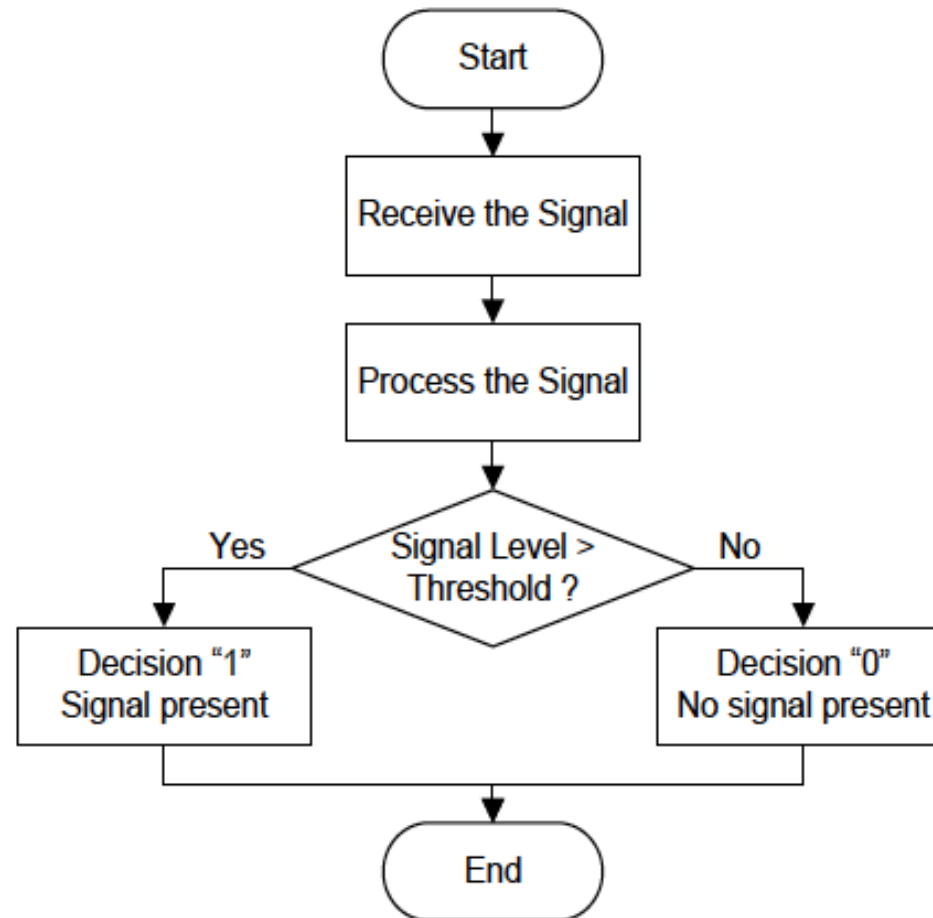
Source: Rizqi Hersyandika (4410106)

Example Block Diagram

Design: Rizqi Hersyandika (4410106)

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Your Task

- Test detector under varying channel conditions
- Show receiver operating characteristic of the detector
- Improve the detection mechanism

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