

Digital Signal Processing

IIR Filters – Assignment 3

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GitHub repo:

Introduction

In this assignment, we have developed an application that uses a 2-axis joystick to manipulate the colour brightness of a Red-Blue LED light, creating dynamic colour effects. This system can be ideally employed in scenarios such as disco or festival lighting, where user interaction through the joystick adds can create an engaging environment. The choice of a joystick as a input interface is particularly relevant because in real-world larger-sized joysticks used for different applications such as drone control can be susceptible to mechanical vibrations and electrical noise arising from other RLC circuit configurations for the whole system. These disturbances can cause unwanted signals that can impact control, hence using IIR filters is ideal for processing signal in a recursive way.