

FPGA BASED LCD FOR FLOOD MONITORING WARNING SYSTEM

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ABSTRACT

Monsoon floods and flash floods are the most severe climate-related natural disaster in Malaysia. Although the Department of Irrigation and Drainage Malaysia has provided online information on flooded areas and highways, there is still no alarm signal if flash flood occurs. Flood Monitoring Warning System (FMWS) with FPGA (Field Programmable Gate Array) based is expected to be an inexpensive system which can provide information based on the water and water flow detecting system. The information can be read from the system display. This report explains the configuration and programming technique for displaying information on different type of LCD using Altera DE2 Development Board. The LCDs has been tested and found to be able to display the expected graph and picture based on the condition of the water level and flowrate.

Keyword: Monsoon floods, Flood Monitoring Warning System (FMWS), FPGA (Field Programmable Gate Array), Altera's DE2 FPGA board, LCD

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CHAPTER 1

INTRODUCTION

1.1 PROJECT BACKGROUND

Flooding is the most common hazard in Malaysia and most floods that occur are natural result of cyclical monsoons during the local tropical wet season, which are characterised by heavy and regular rainfall. Nowadays, flood is the most popular issue in Malaysia since it is the common hazard due to heavy rain and subsequently high river flow. The measurements of rainfall and river level are available online and they are provided by Department of Irrigation and Drainage Malaysia through website [1]. Figure 1.0 shows weather satellite images at 07 until March 8, 2012 for Peninsular Malaysia from Malaysian Meteorological Department website. This figure shows that flood did occur at Klang, Selangor in 12.00pm, 2pm and 4pm.

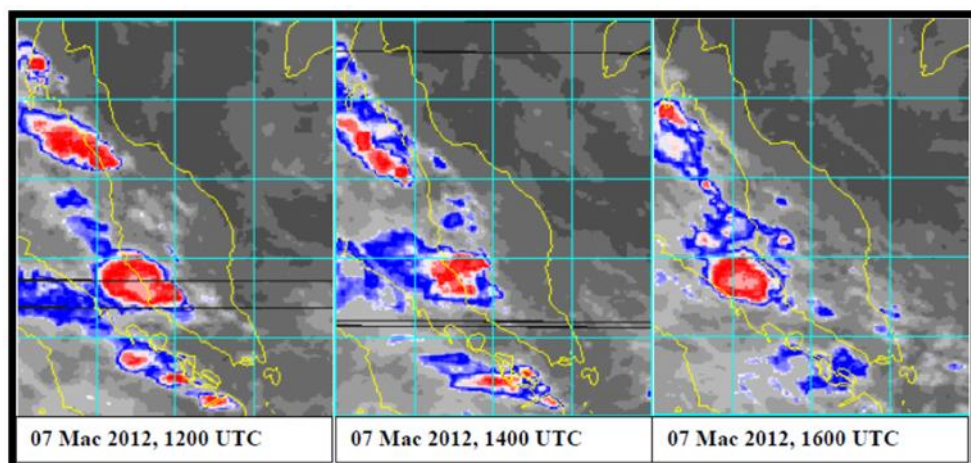


Figure 1.0: Weather Satellite Images at 07 until March 8, 2012 for Peninsular Malaysia