MEMO: TSR-02
DATE: March 9, 2018
TO: EFC LaBerge
FROM: Sabbir Ahmed, Jeffrey Osazuwa, Howard To, Brian Weber
SUBJECT: Team Status Report

1 Introduction

The Galois Field Arithmetic Unit will accept two inputs a and b and determine the desired arithmetic result n, and to establish the field generating polynomial. The unit would serve as a computation engine for a relatively low-powered microcontroller, and would enable complex code and encryption algorithms. Project will include implementation of a Reed Solomon encoder and decoder using the GFAU. The purpose of this report is to detail the progress of the GFAU in the period of February 9, 2017 through March 9, 2018. This is the second status report for the second semester for the GFAU team.

2 Completed Tasks

During this work period, the team has continued to make progress on the GFAU. Including the following achievements:

1. Ordered and received all necessary hardware.
2. Started to interface FPGA with memory.
3. Finish designing I/O handler

3 Planned Tasks

1. Finish interfacing FPGA with memory
2. Finalize all VHDL modules.
3. Interface FPGA with IO.

4 Current Issues

No issues, whether team dynamics or lack of resources.

The following content is an attempt to solve the engineering economic problem shown in slide 11 of Lecture 7.

The following Assumptions were made:

1. Pay back at end of each year with all the profit made during the year.
2. Prevailing interest rate of 5% apply at the end of each year after yearly payment.
3. Let x be the selling price of each unit.

The following calculations show the amount of money owe after money is begin paid back at the end of each year. Amount of money not being paid at the end of each year will carry to the following year:

Year 1: $y_1 = (30M - 100,000x) * 1.05 \Rightarrow 31,500,000 - 105,000x$
Year 2: $y_2 = ((7M - 100020x + y_1)) * 1.05 \Rightarrow 40,425,000 - 215,271x$
Year 3: $y_3 = ((9M - 100040x + y_2) * 1.05 \Rightarrow 51,896,250 - 331,076.56x$
Year 4: $y_4 = ((11M - 100060x + y_3)) * 1.05 \Rightarrow 66,041,062.5 - 452,693.3775x$
Year 5: $y_5 = ((13M - 100080x + y_4)) * 1.05 \Rightarrow 82,993,115.625 - 580,412.046375x$

Because the goal is to break even after 5 years; therefor y5 is set equal to 0:

$(82,993,115.625 - 580,412.046375x) = 0$
$x = \$142.99$

$\therefore$ The selling price of each uPhone has to be $\$142.99$ to break even.