

Upgrade and Update of Computer Systems  
within Dr. Hohlmann's High Energy Physics  
(HEP) Research Group Progress Evaluation:  
Milestone 3

Josef Bostik  
Eric Pereira  
Ryan Wojtyla

November 26<sup>th</sup>, 2018

# Contents

<b>1</b>	<b>HEP Senior Design</b>	<b>1</b>
<b>2</b>	<b>Faculty Sponsor</b>	<b>1</b>
<b>3</b>	<b>Client</b>	<b>1</b>
<b>4</b>	<b>Meeting with Faculty Sponsor</b>	<b>1</b>
<b>5</b>	<b>Meeting with Client</b>	<b>1</b>
<b>6</b>	<b>Progress of current Milestone</b>	<b>1</b>
<b>7</b>	<b>Discussion - Current Milestone</b>	<b>1</b>
7.1	Existing MTS Progress . . . . .	1
7.2	Development MTS Computer Progress . . . . .	2
7.3	Computing Cluster . . . . .	2
7.4	GEM Machines . . . . .	2
<b>8</b>	<b>Parts Worked On</b>	<b>2</b>
8.1	Josef Bostik . . . . .	2
8.2	Eric Pereira . . . . .	2
8.3	Ryan Wojtyla . . . . .	3
<b>9</b>	<b>Task Matrix - Next Milestone</b>	<b>3</b>
<b>10</b>	<b>Discussion - Next Milestone</b>	<b>3</b>
10.1	Existing MTS . . . . .	3
10.2	Development MTS Computer . . . . .	3
10.3	Computing Cluster . . . . .	4
10.4	GEM Machines . . . . .	4
<b>11</b>	<b>Sponsor Feedback</b>	<b>4</b>
11.1	Existing MTS . . . . .	4
11.2	Development MTS Machine . . . . .	4
11.3	Computing Cluster . . . . .	4
11.4	GEM Computers . . . . .	4
11.5	Sponsor Signature . . . . .	5



## 1 HEP Senior Design

- Josef Bostik - jbstik2015@my.fit.edu
- Eric Pereira - epereira2015@my.fit.edu
- Ryan Wojtyla - rwojtyla2015@my.fit.edu

## 2 Faculty Sponsor

Eraldo Ribeiro - eribeiro@fit.edu

## 3 Client

Marcus Hohlmann - hohlmann@fit.edu  
Head of the Florida Tech HEP group

## 4 Meeting with Faculty Sponsor

## 5 Meeting with Client

29 October 2019

## 6 Progress of current Milestone

Task	% Completion	Ryan	Eric	Josef	To Do
------	--------------	------	------	-------	-------

## 7 Discussion - Current Milestone

### 7.1 Existing MTS Progress

Part way through the month, one of the MTS's Front End Controllers (FECs) failed to transmit any data; it was broken. Fortunately, we had a spare FEC that we could put in its place. Unfortunately, however, this FEC was of a different model, and it was not working properly with the

rest of the hardware. After some troubleshooting, it was determined that this newer FEC has a newer version of firmware that is incompatible with the older version installed on the other FECs. Since we do not have the firmware's binary laying around, we are asking former graduate students and other researchers familiar with the MTS if they happen to have a copy to send us.

## **7.2 Development MTS Computer Progress**

While trying to use the required software we had just installed, namely AMORE, it became apparent to us that there were some serious compatibility issues. Turns out, the latest version of AMORE depends not on the latest version of ROOT, ROOT 6, but the previous version, ROOT 5. After we had discovered this issue, we began the task of uninstalling ROOT 6 and installing ROOT 5. The process of installing ROOT 5 presented us with another issue: it was having a hard time building. After some troubleshooting and research, we discovered that we were simply attempting to build the software in the incorrect directory. With this solved, ROOT 5 was built and it is installed. AMORE, however, is still giving us trouble.

## **7.3 Computing Cluster**

## **7.4 GEM Machines**

# **8 Parts Worked On**

## **8.1 Josef Bostik**

- 

## **8.2 Eric Pereira**

- Testing two hard drives for GEM Computers
- Fixing MySQL installation error on GEM computers

- Created script and automated graphing data on Rapberry PI for GEM computers

### 8.3 Ryan Wojtyla

- 

## 9 Task Matrix - Next Milestone

Task	Ryan	Eric	Josef
------	------	------	-------

## 10 Discussion - Next Milestone

### 10.1 Existing MTS

Once the new FEC is inundated with the correct version of firmware, data collection in its present state may resume. The MTS, however, is stilled marred by its prior issues of potentially faulty detectors and bugs with data processing.

### 10.2 Development MTS Computer

The development MTS machine

**10.3    Computing Cluster**

**10.4    GEM Machines**

**11    Sponsor Feedback**

**11.1   Existing MTS**

**11.2   Development MTS Machine**

**11.3   Computing Cluster**

**11.4   GEM Computers**

## 11.5 Sponsor Signature

---

Sponsor Signature

---

Date

## 12 Sponsor Evaluation

Josef Bostik	0	1	2	3	4	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10
Eric Pereira	0	1	2	3	4	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10
Ryan Wojtyla	0	1	2	3	4	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10