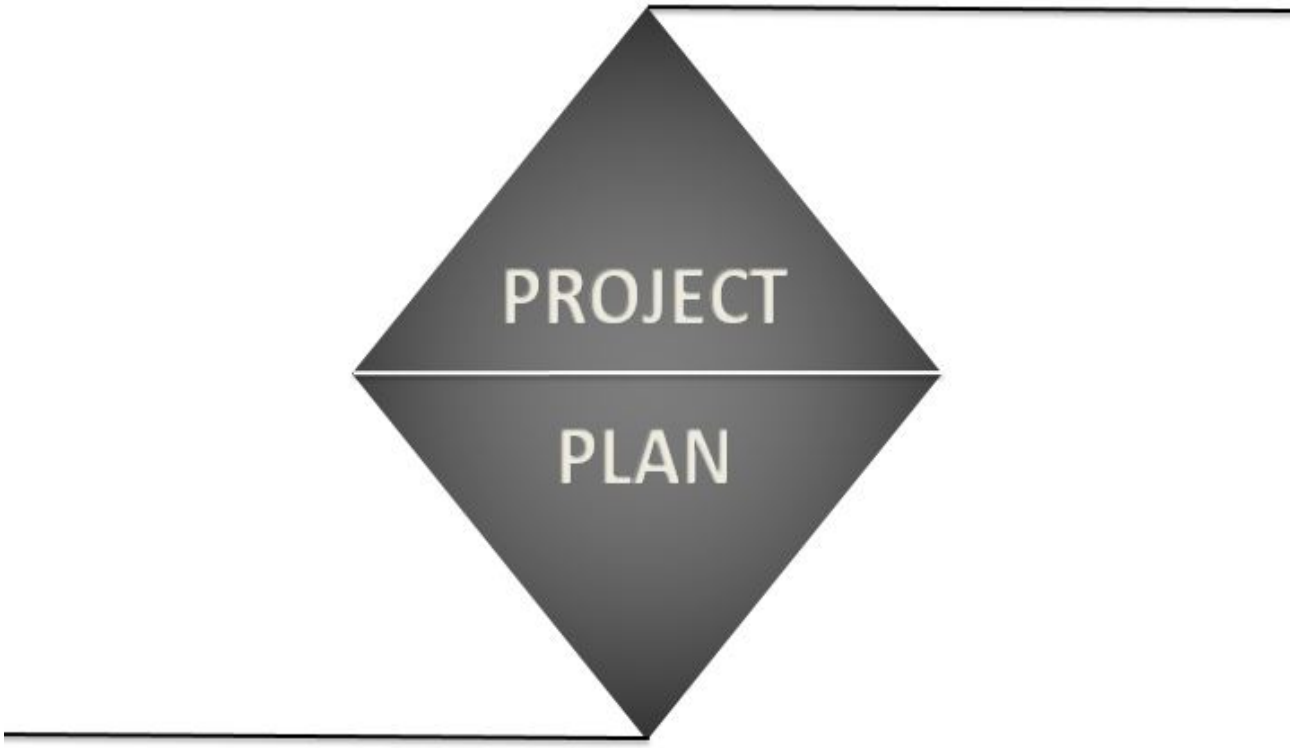
# AUTOMATIC LAUNDRY SYSTEM




***Group: 05***
Fardin Momtaj-201614012
Umair Sifat-201614015
Imtiaz Ahmed-201614030
S M Arif Ahmed-201514042
Farhan Saif Chowdhury-201414077

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Signature Of the Course Teacher

Department Of Computer Science and Engineering
MILITARY INSTITITE OF SCIENCE AND TECHNOLOGY

# Contents

# Revision History

| Revision | Date | Author(s) | Description |
|---|---|---|---|
| 1.1 | 16-04-2019 | | Initial Version |
| 1.2 | 23-04-2019 | | Project Plan Maintenance |
| 1.3 | 30-4-2019 | | Deliverables, Project approach, Work Plan, Milestone, Risks, Constraints, Assumption Financial Plan, Others |
| 1.4 | 10.01.2016 | | Finale Version |

# Chapter 1

# Introduction

**The purpose of the Project Plan is to document all managerial aspects of a project that are required to execute it successfully within its constraints**

## 1.1 Document Purpose

**The Project Plan will present the detail required to successfully execute and control the project, facilitate communication among project stakeholders, and document approved schedule baselines. The project plan is a living document and is expected to change over time as more information about the project becomes available.**

## 1.2 Associated Documents

**The following documents associated with the project plan are attached:**

| **Documen** | **Version** | **Issue Date** | **Description** |
|---|---|---|---|
| Project Proposal | Final Version | 12-03-2019 | Initially idea of the project and a proposal for the approval of the idea. |
| Software Requirement Specification | V1.6 | 30-04-2019 | Detail description of the system to be developed and the user requirements to be developed |
| Comparative Discussion | Final Version | 02-04-2019 | Overall comparison with the existing system |

# Chapter 2

# Project Scope

The proposed system gives a smart solution for the automation of the laundry system. The system will make the job of maintaining cloths easier for a client and for organization it will reduce the time and hustle it takes to maintain cloths in a proper manner.

## 2.1 Objectives

- Make the laundry system automatic integrated with ironing, folding and packaging.
- Reduce the time it takes to do the task manually by human being.
- Design a cost effective way to do this automatic system.

## 2.2 Success Criteria

Success will measured according to the objective. The proposed system have to efficient so that it can reduce the time and hustle to maintain a cloth properly.

# Chapter 3

# Deliverables

The proposed system will provide the following features to the client

- Automatic folding machine.
- Automatic ironing machine.
- Automatic packaging machine.
- A vending mechanism for process and billing.
- A mobile application to use the system.

# Chapter 4

# Project Approach

Agile methodology has been followed to carry out the proposed system from the beginning to end. As the proposed system is divided into different functionality, it needs to check the result after the completion of each functionality. And each step is depended on the next step of the system. In the agile methodology the whole system is divided into parts and each part is designed and developed then the design and development of next part is performed. Following agile methodology can result the maximum efficiency of the system.

## 4.1 Project Team Organization

| **Name** | **Responsibility** |
|---|---|
| Imtiaz Ahmed | Software |
| Fardin Momtaj | Hardware |
| Umair Sifat | Hardware |
| S M Arif Ahmed | Software |
| Farhan Saif Chowdhury | Hardware |

# Chapter 5

# Work Plan

The work plan is maintained according to the initial scheduling of the project which was finalized earlier. Development of the project will also be maintained according to the schedule. After completion of each section of the system the work plan as well as the project plan will be updated.

## 5.1 Work Breakdown Structure

- **Automatic Laundry System**
  - **Idea**
    - Determine Project Scope
    - Determine Project Ideas
    - Project Idea Submission
    - Study Details Of the Idea
    - Detail Idea Submission
    - Initial Approval
    - Project Scheduling
    - Idea Approval
    - Final Project Scheduling
    - Idea Complete
  - **Analysis Requirement**
    - Conduct needs analysis
    - Draft preliminary software specifications
    - Draft preliminary Hardware specifications
    - Develop preliminary budget
    - Review specifications/budget with team
    - Incorporate feedback on software specifications
    - Incorporate feedback on hardware specifications
    - Develop Submission timeline
    - Obtain approvals to proceed (concept, timeline, budget)
    - Concept Approval
    - Analysis complete
  - **Design**
    - Review Preliminary Software Specification
    - Review Preliminary Hardware Specification

    - Develop Functional Specification
    - Develop Prototype Based on Functional Specification
    - Review Functional Specification
    - Incorporate Feedback into Functional Specification
    - Obtain approval to Proceed
    - Design Complete
- **Design**
    - Review Preliminary Software Specification
    - Review Preliminary Hardware Specification
    - Develop Functional Specification
    - Develop Prototype Based on Functional Specification
    - Review Functional Specification
    - Incorporate Feedback into Functional Specification
    - Obtain approval to Proceed
    - Design Complete
- **Development**
    - Review functional specifications
    - Identify modular/tiered design parameters
    - Assign development staff
    - Buy Components
    - Folding Machine
    - Ironing Machine
    - Vending Mechanism
    - Integrate VM and Folding Machine
    - Integrate VM and Ironing Machine
    - Integrate VM, Folding and Ironing
    - Software Development
    - Software and VM integration
    - Overall Integration
    - Packaging Machine
    - Integration with Packaging
    - Final Integration
    - Development Complete
- **Testing**
    - Testing Plan
    - Folding Machine
    - Ironing Machine
    - Vending Mechanism
    - Integrate VM and Folding Machine
    - Integrate VM and Ironing Machine
    - Integrate VM, Folding and Ironing
    - Software Development
    - Software and VM integration
    - Overall Integration
    - Packaging Machine
    - Integration with Packaging
    - Final testing
    - Testing Complete

  - **Training**
    * Develop training specifications for end users
    * Develop training specifications for help desk support staff
    * Identify training delivery methodology (computer based training, classroom, etc.)
    * Develop training materials
    * Conduct training usability study
    * Finalize training materials
    * Develop training delivery mechanism
    * Training materials complete
  - **Documentation**
    * Develop Help specification
    * Develop Help system
    * Review Help documentation
    * Incorporate Help documentation feedback
    * Develop user manuals specifications
    * Develop user manuals
    * Review all user documentation
    * Incorporate user documentation feedback
    * Documentation complete
  - **Deployment**
    * Determine final deployment strategy
    * Develop deployment methodology
    * Secure deployment resources
    * Train support staff
    * Deploy software
    * Deployment complete
  - **Post Implement Review**
    * Document lessons learned
    * Distribute to team members
    * Create software maintenance team
    * Post implementation review complete

- **Complete Project**

## 5.2 Resource Overview

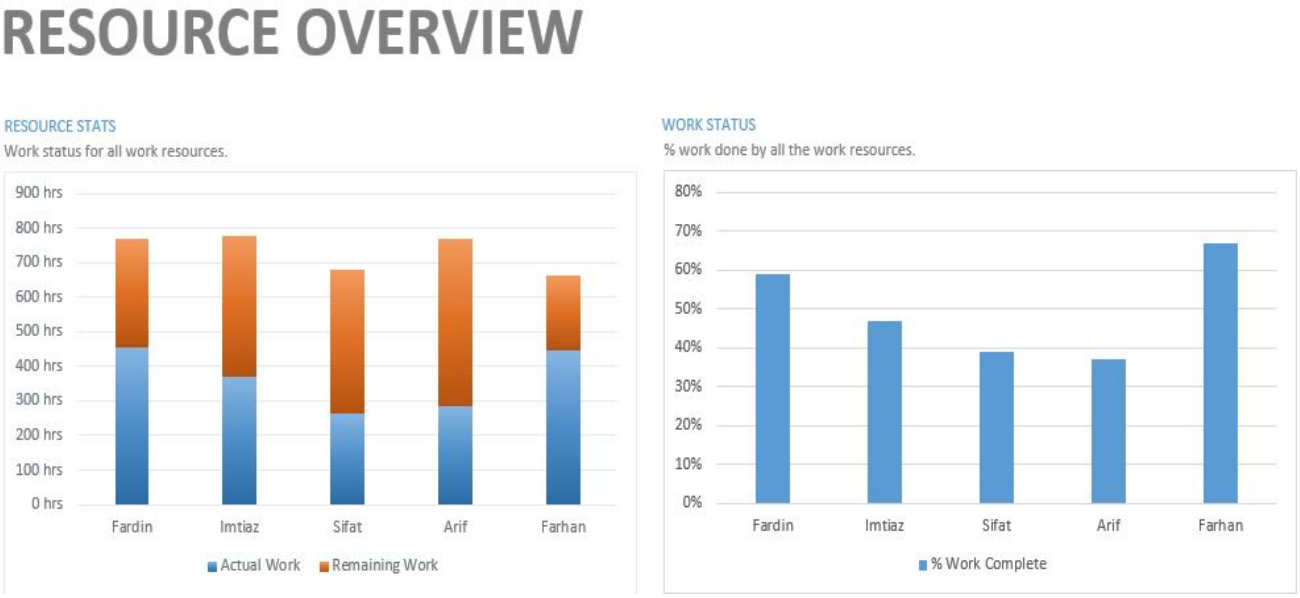



Figure 5.1: Resource Overview

# Chapter 6

# Milestone

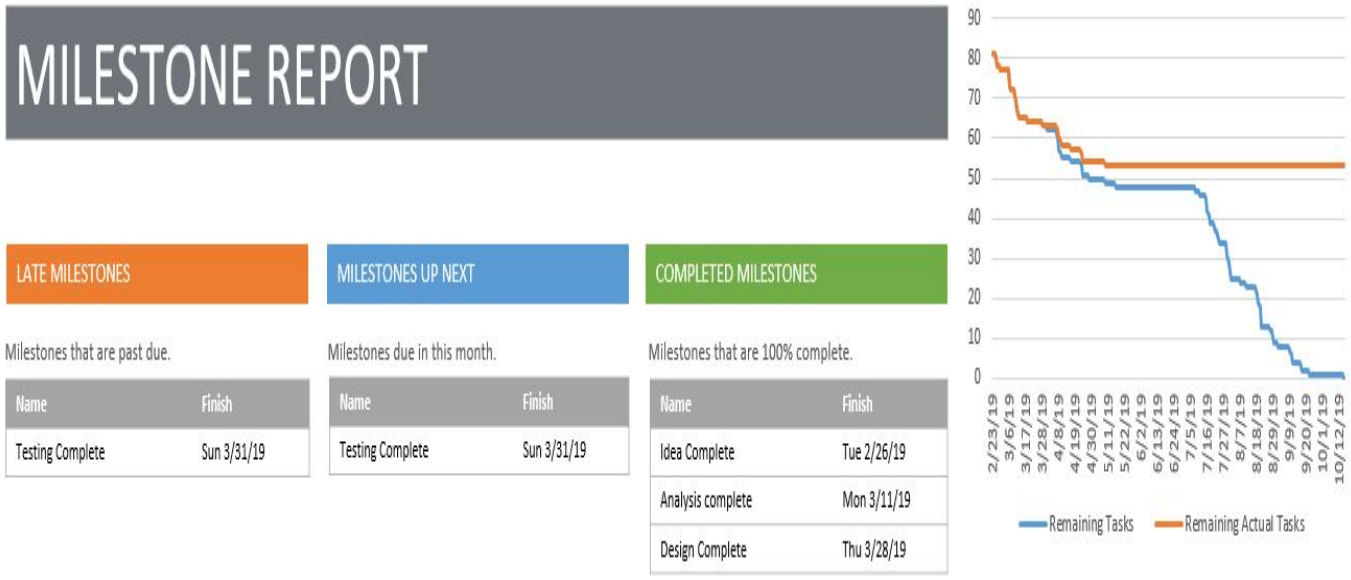



Figure 6.1: Milestone Report

# Chapter 7

# Risk, Constraints, Assumptions

A risk mitigation plan is designed to eliminate or minimize the impact of the risk events. Constraints describes the limitation of the proposed system. Assumption indicates the plan of the system which can be done but not guaranteed.

## 7.1 Risk

As the proposed system can process only shirts and pants. When using the same folding plate for shirt and pant, the shirt and pant have to place in their respective place.

## 7.2 Constraints

The main constraints of the proposed system is the system that can process only shirt and pant no other kinds of cloths. Another limitation of the system in the packaging part is that the packet have to set manually by the user.

## 7.3 Assumption

The proposed system uses air compressor to lift up the pneumatic cylinder. Sometimes after several round of usage pressure can differentiate which will create problem to lift up the pneumatic cylinder. By using less powerful air compressor we assume that the pressure will be same for every round of usage.

# Chapter 8

# Financial Plan

| Resource Name | Type | Initials | Group | Max. Units | Std. Rate | Ovt. Rate | Cost/Use | Accrue At | Base Calender |
|---|---|---|---|---|---|---|---|---|---|
| Fardin | Work | PD | HW | 100% | $1.00/hr | $0.00/hr | $0.00 | Prorated | MIST Calender |
| Imtiaz | Work | Asst. PD | HW | 150% | $1.00/hr | $0.00/hr | $0.00 | Prorated | MIST Calender |
| Sifat | Work | S | SW | 150% | $1.00/hr | $0.00/hr | $0.00 | Prorated | MIST Calender |
| Arif | Work | A | SW | 200% | $1.00/hr | $0.00/hr | $0.00 | Prorated | MIST Calender |
| Farhan | Work | F | HW | 150% | $1.00/hr | $0.00/hr | $0.00 | Prorated | MIST Calender |
| LED Screen | Material | L | | | $12.00 | | | Prorated | |
| Wifi-module | Material | W | | | $12.00 | | | Prorated | |
| Camera Module | Material | C | | | $18.00 | | | Prorated | |
| Penumatic Cylinder | Material | P | | | $125.00 | | | Prorated | |
| Air compressor | Material | A | | | $62.00 | | | Prorated | |
| Stepper Motor(2)+Driver | Material | S | | | $24.00 | | | Prorated | |
| Valve | Material | V | | | $38.00 | | | Prorated | |
| Base | Material | B | | | $25.00 | | | Prorated | |
| Compressor oil | Material | C | | | $3.00 | | | Prorated | |
| Pipe | Material | P | | | $14.00 | | | Prorated | |
| Filter | Material | F | | | $5.00 | | | Prorated | |
| Penumatic Nipple | Material | P | | | $15.00 | | | Prorated | |
| Bearing | Material | B | | | $16.00 | | | Prorated | |
| Nut | Material | N | | | $2.00 | | | Prorated | |
| Rod fram | Material | R | | | $70.00 | | | Prorated | |
| Nut for frame | Material | N | | | $4.00 | | | Prorated | |

| Resource Name | Type | Initials | Group | Max. Units | Std. Rate | Ovt. Rate | Cost/Use | Accrue At | Base Calender |
|---|---|---|---|---|---|---|---|---|---|
| Arduino MEGA | Material | A | | | $10.00 | | | Prorated | |
| Rasberry Pi | Material | | | | $65.00 | | | Prorated | |
| Bucket | Material | B | | | $3.00 | | | Prorated | |
| Extra | Material | E | | | $60.00 | | | Prorated | |

# Chapter 9

# Others

## 9.1 Project Overview

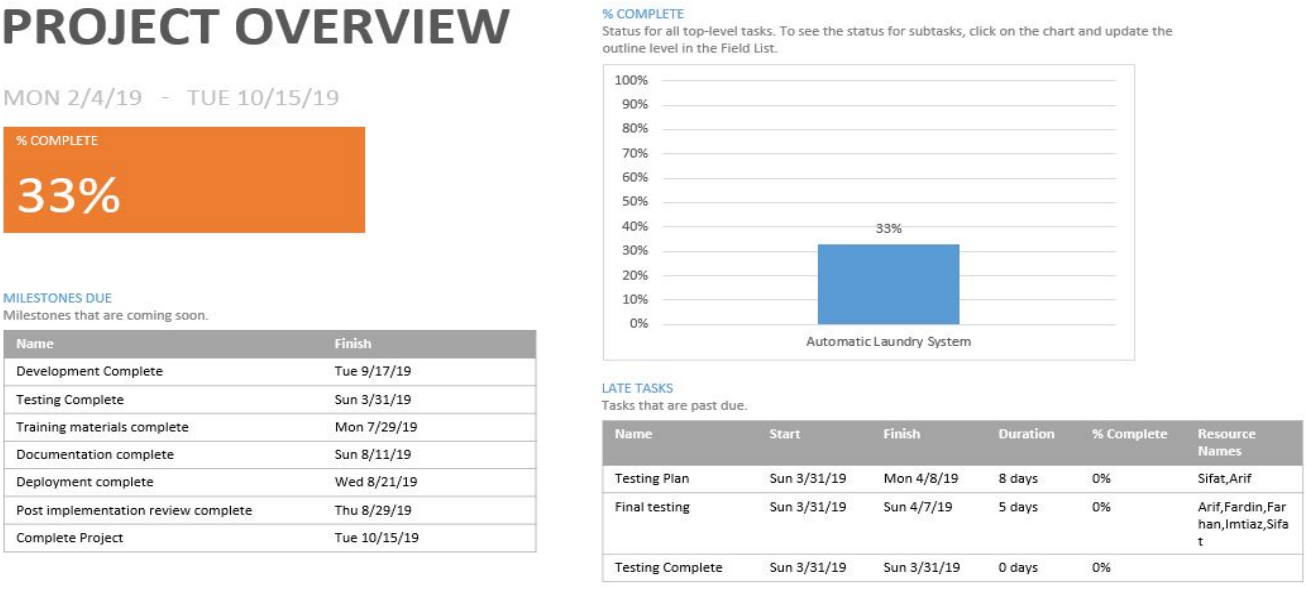



Figure 9.1: Project Overview

## 9.2 Cost Overview

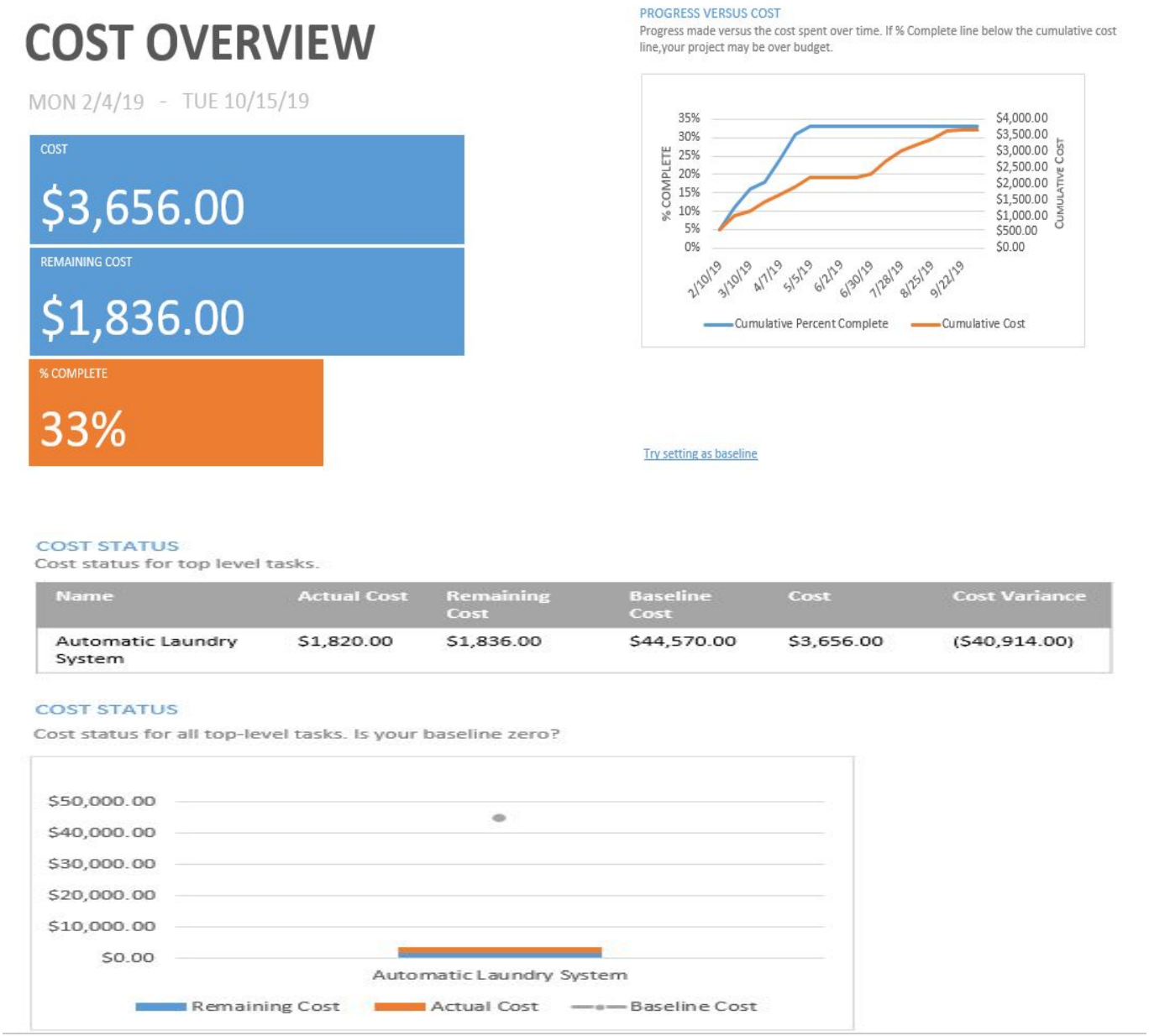
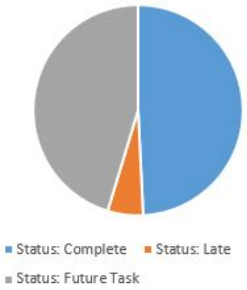



Figure 9.2: Cost Overview

## 9.3 Critical Task Report

# CRITICAL TASKS




A task is critical if there is no room in the schedule for it to slip.
Learn more about managing your project's critical path.

| Name | Start | Finish | % Complete | Remaining Work | Resource Names |
|---|---|---|---|---|---|
| Software Development | Thu 8/1/19 | Sun 8/18/19 | 25% | 60 hrs | Arif |
| Software and VM intigration | Sun 8/18/19 | Wed 8/21/19 | 0% | 0 hrs | |
| Overall Intigration | Wed 8/21/19 | Tue 8/27/19 | 0% | 280 hrs | Arif,Fardin,Farhan ,Imtiaz,Sifat |
| Packaging Machine | Wed 8/28/19 | Mon 9/9/19 | 0% | 40 hrs | Imtiaz |
| Intigration with Packaging | Mon 9/9/19 | Wed 9/11/19 | 0% | 24 hrs | Imtiaz |
| Final Intigration | Wed 9/11/19 | Tue 9/17/19 | 0% | 168 hrs | Fardin,Farhan,Imt iaz |
| Complete Project | Tue 10/15/19 | Tue 10/15/19 | 0% | 0 hrs | |

Figure 9.3: Critical Task Report