Department of Computer Science and Engineering  
The University of Texas at Arlington

<<Put Project Team Name Here>>

<<Put Product Name Here>>

Team Members:   
member 1  
member 2  
member 3  
...  
member n

Late Updated: 22 February 2012 @ 10:46:00 AM

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# General Organization

## Project Manager

The team’s Project Manager is Chudamani Aryal who was selected for his project management experience. The Project Manager will work with team members to plan and organize the project activities. The Project Manager will also perform most of the administrative tasks including calling team meetings, setting the meeting agendas, and steering the overall group design process. The Project Manager will also perform work on team deliverables as necessary.

Chudamani may be reached at chuduz6@hotmail.com.

## Project Oversight

The project will have bi-level oversight. Internal team controls shall be employed to monitor task-level and project-level status. These include the Work Breakdown Structure, Status Reports, Immediate Task Status Reporting and regularly scheduled meetings. This will serve as the first level of oversight designed to make fine-level adjustments. The Team Supervisor, Mr. O’Dell will serve as the second level of oversight at a course level of detail. The procedures for each level are as follows:

### Internal Status Monitoring

The following controls shall be employed to maintain a continual assessment of project status:

1. Work Breakdown Structure (WBS)
   1. All tasks, no matter how small or trivial will be entered into the WBS.
   2. The WBS shall be updated regularly (weekly, at least)
2. Status Reports – Weekly status reports
3. Immediate Task Status Reporting
   1. Completion of a task is communicated during the weekly meetings.
   2. Delay of a task is communicated immediately upon knowing to the project manager.
4. Team Status Meeting – Weekly (Tuesday and Thursday)
   1. Reviews all open, miscellaneous action items.
   2. Reviews tasks for the week

### External Status Monitoring

The team will provide Mr. O’Dell with status reports per the Summer CSE 4316 class schedule. Mr. O’Dell has specified that the team shall provide individual status reports and a team status update presentations.

## Roles and Responsibilities

There are various roles for individuals related to this project. These are distributed among the team members, the team supervisor, the project sponsor and the end-user liaison. These people are identified below:

1. Team Members
   1. Chudamani Aryal
   2. Tyler Buchanan
   3. Jefferson White
   4. Lloyd Bond
2. Team Supervisor – Michael O'Dell
3. Project Sponsor – Dr. Roger Walker
4. End- user Liaison – TBD (Dr. Roger Walker acting)

This team uses a matrix organizational structure. While the team uses a Project Manager position, the role is functional rather than administrative. Thus, the members of this team are organizational peers. In this manner, the structure is flat with accountability being to the project, the Team Supervisor and the Project Sponsor.

## Project Constraints

This project is part of the Senior Design capstone course at the University of Texas at Arlington. The Detailed Design, Product Development/Debugging and System Testing phases of this project will occur during the Fall 2012 semester. This constrains these phases to an eleven (16) week schedule.

The team is constrained to a fixed size of four members. Members will be able to provide varying levels of commitment to the project on a weekly basis due to other external obligations. This constrains the project to a fixed man-hour capacity.

## Project Assumptions

* Product will operate in all weather related conditions applicable for laying concrete.
* Product will be stored in varied temperature range.
* Product may be exposed to temperature extremes other than the above cases. E.g. Alaska(cold),Texas(hot).
* Product will be returned to an authorized maintenance authority for servicing (technician) and calibration (support-user).
* Product will not be serviced on location.
* Maintenance authorities (technicians) will have the means to properly test recalibrated Products before returning them to service.
* Power will be made available for the Product from the road paver.
* Product need only maintain a window of sensor history in memory to detect bumps.
* Product need not contain an audible bump indicator.
* Product will not have any sort of display other than indicator lights on the actual platform; all display will occur on a remote system.

## Preliminary Schedule and Cost Estimates

Given the constraints and assumptions indicated above, the following high-level overview of key checkpoints and dates was determined for this project. Project Cost is in order-of-magnitude for both man-hours and currency.

### Initiating Authority’s Checkpoints

Checkpoint Estimated Completion Date

Requirement Review Gate TBD

Architectural Design Gate TBD

Detailed Design Gate TBD

Test Plan Gate TBD

Prototype Delivery December 2012

### Initial Project Costs Estimates

Personnel Resources 2000 man-hours

Hardware Resources $800

Software Resources NA

# Scope Statement

The Sliding Profiler is a product originating with Dr. Roger Walker. Dr. Walker is the current patent holder for the sliding profiler. Dr. Walker holds this patent in the public domain for University of Texas at Arlington. It is University of Texas at Arlington to generate money from development of this product. The current version’s main use is to aid in the development of new roadways by ‘bump detection’. Since Texas Department of Transportation incentivizes with a bonus/penalty to encourage the attentive process of laying smooth roadways. The Sliding profiler system is very important to ensure the roadways produced, are as smooth as possible. The goal of this project is to design a model that is capable of use anywhere concrete can be laid for streets.

The current model consists of the following:

* Inclinometer
* Distance Encoder
* Heartbeat Light (to show that the program is up and running)
* Beacon Light (bump identifier)
* ON/OFF Switch
* Connections to External Power (provided by the client)
* Connections to Client PC
* Embedded PC
* Snowboard (platform)

The upgrade will feature

* PIC Microcontroller instead of an Embedded PC
* GPS location tracking
* More Friendly UI
* Improved platform
* More tolerant components for extreme weather conditions applicable to laying concrete

# Cost Management Plan

*Exactly* ***what do you plan to do to stay within the budget****? How will you control costs in terms of person-hours and dollars? ($800 and roughly 2000 person-hours)*

# Earned Value Management

*How to you intend to* ***measure and report*** *earned value?*

# Scope Management Plan

*What is the* ***strategy and plan for controlling the scope*** *of the project and eliminating excessive feature creep?*

# Work Breakdown Structure

*What is the WBS (****to the top three levels****)? Show it here in outline form.*

# Quality Management Plan

## Overview

A quality management plan ensures that through the development phase the product continues to meets requirements and acceptance criteria. The quality management plan for The Builders Group involves the following steps:

* Component Testing
* Integration Testing
* Formal & Informal Test Plans
* Access to Previous Test Results

Component testing will be completed by the Developer and is required in order for the component to be considered completed. This will follow an informal test plan of the Developer’s design. A brief summary of tests performed and results obtained will be provided to the Quality Manager upon completion.

Integration testing will be completed by a Test Engineer as assigned by the Quality Manager. It will test the functionality of components as they are brought together into a working whole. Only one component will be added to the system at a time; after it has passed integration testing, more components may be added. This will help to minimize troubleshooting.

Formal and informal test plans will be created by both the Quality Manager and the developers. The plans will delineate the manner of testing to be done on the components and product. The results of executing these plans will be reported to the Quality Manager for recording. Test plans will cover areas such as: boundary conditions, error conditions, invalid input, and stress testing.

Test results previously submitted to the Quality Manager will be maintained by the same in the project’s online code repository for access by The Builders Group team at any time.

## Roles and Responsibilities

Throughout the project, there will be three roles associated with quality management: the Quality Manager, the Developer, and the Test Engineer. The responsibilities of each are listed in Table 7-1 below.

Table 3 - Quality Management Roles and Responsibilities

| **Role** | **Responsibilities** | **Assigned Personnel** |
| --- | --- | --- |
| **Quality manager** | * Inquire about testing progress/issues of completed components * Help generate formal and informal test plans * Track component testing results for future reference * Report any findings and keep the group apprised of known bugs and flaws * Ensure product development continues to take into account the acceptance criteria * Assess priority of findings and allocate resources to address as necessary | Lloyd Bond |
| **Hardware, Software, Platform Developers** | * Generate informal test plans with Quality Manager’s assistance as necessary * Test individual components before submission as complete * Inform Quality Manager of testing generalities and any issues encountered | Team Members |
| **Test Engineers** | * Follow formal test plans * Perform integration testing * Inform Quality Manager of results of testing and any issues encountered | Team Members |

# Communications Plan

*How will you* ***ensure good communication*** *with each other – and with everyone else! How will you keep everyone on the same page throughout the life of the project? What about reports, impromptu meetings, scheduled team meetings, email, etc.?*

# Change Management Plan

## Purpose of Integrated Change Management Plan

*Describe the purpose of the Integrated Change Management Plan using the following guidelines. Do not merely describe the content of the plan, but explain why Integrated Change Management is necessary for the project.*

*Projects are dynamic efforts and as such,* ***change is inevitable****. One of the greatest challenges to a project’s success is controlling the impact of change or managing changes to the benefit of the project objectives. By accepting the fact that change will occur and planning for the management of change, the probability of project success is increased and enhanced.* ***Discuss here where you might expect change to arise, what might cause it, etc.***

*The purpose of the Integrated Change Control Plan is to* ***define all processes, practices, tools, review bodies, and authority necessary to monitor and control project performance, identified change and the potential impact of change on project objectives****.*

## Roles and Responsibilities

*Describe how the following project participants, at a minimum, perform in the planning and execution of project change management.*

*Project Sponsor*

*Project Manager*

*Project Team*

*Other Stakeholders*

## Review and Approval Process

*Describe the process to identify change in the project scope, cost, and budget. Describe the change approval authorities and review boards that will process change control documents. An example may be a change control board made up of leaders in various project disciplines such as project management, cost, scheduling, configuration management, technical design, and test. Sponsors, system owners, and users should also be considered. A process flow chart is appropriate for this section.*

## Change Identification, Documentation, Implementation and Reporting

*Define and describe the* ***change control form*** *and the documentation required to track a change request. Describe any automated tools used to manage and track changes and identify the process for entering and reporting changes. Describe the process for* ***updating any affected documents, the WBS (schedules) and budget/cost documents with approved changes****. If the baseline for these documents changes, describe the means for capturing the baseline change in the OMB Exhibit 300 process.*

# Risk Management Plan

## Purpose of Risk Management Plan

*Describe the purpose of the Risk Management Plan using the following guidelines. Do not merely describe the content of the plan, but why Risk Management is necessary for your project.*

*Risk is an indicator of uncertainty about the future. The greater the investment in a project, the more one has to lose should any problems delay or derail the project. Risks on any project must be identified and analyzed so that project teams can prepare for their potential occurrence and lessen or eliminate their chance of occurring.*

*The Risk Management Plan provides a systematic method of identifying and analyzing the effects of uncertainties in the project and to plan for minimizing or containing the consequences of any undesired event that may influence the success of the project.*

## Roles and Responsibilities

*Describe how the following project participants, at a minimum, perform in the planning and execution of project communications*

* *Project Sponsor*
* *Project Manager*
* *Project Team*
* *Project Stakeholders*
* *Risk Manager*

## Risk Identification

*During risk identification, the perception of a potential problem is documented in sufficient detail to enable effective assessment of the risk to support subsequent management decisions. Once the risk has been identified and reviewed, the risk is recorded into the risk database.*

*The project team systematically reviews the project deliverables and activities for possible risk information. Typically, risk information is derived from:*

*Analysis of high-level deliverables*

*Analysis of the work Breakdown Structure (WBS) and Network diagram*

*Analysis of change requests*

*Project team input (experience, lessons learned etc.)*

*Stakeholder input (assumptions, organizational requirements etc.)*

## Risk Triggers

*Risk triggers are events or performance characteristics that warn of the occurrence of risk events. An example of a risk trigger would be a supplier missing deliverable dates, delaying related activities, and adding cost to project.*

## Risk Analysis

*The goal of risk analysis is to ensure that the risks are examined in a structured and systematic manner. The risk owner may work with the risk coordinator to formulate the initial risk assessment. Two methods of risk analysis are employed in this process – qualitative and quantitative analysis.*

*A qualitative risk assessment qualifies the expected impact, probability, and timeframe of a risk. The results of the risk analysis are recorded on a risk identification form. The results are used to determine Risk Management priorities.*

*A quantitative risk analysis is also accomplished where the impact of a risk is ranked against other risk events or in the case or performance, the risk is assessed as a percentage of reduction in performance.*

## Risk Severity

*The results of qualitative analysis and quantitative analysis are captured on an impact/probability chart, called the Risk Severity Grid. The grid is used to determine the priority that is assigned each risk and the need to develop containment strategies.*

## Risk Response Planning

*Risk response planning involves identifying the strategy for minimizing the effects of the risk to a level where the risk can be controlled and managed to ensure the project objectives are achieved. Risk reduction strategies include research, watch, mitigate, accept, or transfer.*

## Risk Documentation and Reporting

Create a central repository for risk information and mitigation strategies. This is typically an automated system where risk information is available to appropriate project team members and risk owners. Typical tools include the risk register (the complete risk database) and a monthly risk status report that is part of the OMB Exhibit 300 process.

## Risk Control

*Define the risk control process that addresses risks on a periodic basis. Describe how risks are regularly reassessed and the risk database is updated. Describe how the risk triggers are regularly assessed and validated. Insure, on a periodic basis that new risks are being identified, assessed and captured in the database.*

# Procurement Management Plan

## Purpose of the Procurement Management Plan

Procurement is the process of acquiring anything tangible or intangible requiring expenditure charged against the project budget. An efficient plan will accomplish the following:

* Identify the purchasing needs of the project including:
  + individual products and services
  + the purchasing timing requirements
* Establish a procurement policy
* Establish purchase monitoring practices that

## Roles and Responsibilities

Table 11-1 Roles and Responsibilities

| **Role** | **Responsibilities** | **Assigned Personnel** |
| --- | --- | --- |
| **Project Sponsor** | * Make purchasing approvals | Roger Walker |
| **Team Supervisor** | * Make purchasing approvals | Michael O’Dell |
| **Procurement Manager** | * Work with Lead Architect to identify project procurement needs * Perform procurement cost analysis * Obtain procurement approval * Track purchase orders * Report completed purchases | Lloyd Bond |
| **Integration Lead** | * Work with Procurement Manager, Hardware Architect, Software Architect, Platform Architect to identify purchasing needs | Chudamani Aryal |
| **Team Members** | * Perform procurement identification as necessary according to role | Chudamani Aryal, Tyler Buchanan, Jefferson White, Lloyd Bond |

## Required Project Procurements and Timing

The Procurement Manager will work with the team Architects during the architectural design phase of the project to identify the requirement project procurements and their appropriate timings.

## Description of Items/ Services to be acquired

This section of the Procurement Management Plan will provide a tentative list of items that will be ordered from external sources to complete the project. These items include:

* Inclinometer
* PIC microcontroller
* One Chip solution Ethernet interface (I2C, SPI)
* Light material platform
* Distance Encoder
* Various Hardware
* Various discrete circuit components
* Temp Sensor
* Others TBD

# Project Closeout Report

## The following are suggested sections for the Project Closeout Report:

## Purpose of Closeout Report

*Describe the purpose of the Closeout Report using the following guidelines:*

*The closeout report insures that personnel, contract, administrative, and financial issues are resolved, that documents are archived, and lessons learned are captured.*

## Administrative Closure

### Were the objectives of the project met?

*Review the project objectives and indicate if the objectives were met. If there were deviations from the baseline objectives and the final product, describe those here.*

### Archiving Project Artifacts

*Describe how project documents will be collected and archived for future reference. Documentation to consider:*

*Financial records*

*Cost and schedule performance reports and records*

*Quality data*

*Correspondence*

*Meeting Notes*

*Status Reports*

*Issue and Action Log*

*Risk Log*

*Contract Files*

*Change Requests*

*Technical documents*

*Acceptance records*

### Lessons Learned

*Conduct a lessons learned session to discuss and capture the performance (e.g., what worked well, what did not work well) from start to finish on the project. Capturing and incorporating lessons learned on future projects are among the most important ways in which an organization gathers information to institutionalize repeatable processes and avoid repeated mistakes.*

### Plans for Post Implementation Review (PIR)

*Describe the plan to conduct the Post Implementation Review (PIR).*

### Final Customer Acceptance

*Describe the achievement of final customer acceptance. Describe the final meeting with customer, who attended and what disciplines were represented (finance, contracts, quality, etc.) Discuss the documents signed. If open issues remain, discuss the plan for their resolution.*

### Financial Records

*Discuss the review of invoices, purchase orders, and final cost reporting. Describe where the final cost records are archived.*

### Final Project Performance Report

*Summarize the project’s scope management, schedule performance, cost performance, quality achievements, and a review of the risk containment performance. Discuss the reasons for cost or schedule variances.*