WBS Dictionary for Bicycle Project

By

Troy Stempfley

Embry-Riddle Aeronautical University Worldwide

PMGT 690

June 24, 2017

WBS 3.4, WBS Dictionary


by

Group 4

Adrienne Smith

Ashley Sweat

Dein Elliot

Marilyn Villagas

Ronald Howze

Troy D. Stempfley




A Paper
Submitted to ERAU Worldwide
in Partial Fulfillment of the Requirements of the
Master Science Degree Course
PMGT 614




Embry-Riddle Aeronautical University
Worldwide
Online Campus
November 2016

| **WBS Detailed Dictionary** | |
|---|---|
| **WBS Element No./Name:**<br>1.1 Frame Set | **Date:11/2/2016** |
| **Author/Organization:**<br>Assembly Shop | |
| **Email Address:**<br>ashop@buildabike.com | **Phone:** 123-456-7890 |

**Estimate Summary:** (Fill out using data from attached detailed worksheet)

| | |
|---|---|
| Labor | $24.00 |
| Travel | $0.00 |
| Material | $570.00 |
| Subcontracts | $0.00 |
| ODC | $34.00 |
| **Total** | **$628.00** |

**WBS Element Description:**

*Assemble the Frame set from components listed in Activity/task*

**Activity/Task Descriptions:**

*Unpacking frame set components and quality inspect*
*Install fork with bearing set*
*Install handle bar post and handle bar*
*Install seat with post.*

**Key Cost-Driving Assumptions: $34**

*Cost for shipment from Frame shop and various venders*
*Frame & Fork set- $24*
*Handle bar & post set- N/A local purchase.*
*Seat & Post Set - $10*

**Task Entry/Exit Criteria:**

   *TASK ENTRY:  All components must be available and Quality inspected.*

   *TASK EXIT:  Frame Set assembly completed ready for further component installation.*

| Labor | Detailed Schedule Activities/Task Descriptions | Start Date or predecessor | Estimated Duration | Labor Hours by Labor Category | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Position /Skill/ Resource | Position /Skill/ Resource | Position /Skill/ Resource | Position /Skill/ Resource | Position /Skill/ Resource | Position /Skill/ Resource | Position /Skill/ Resource | Position /Skill/ Resource |
| 1 | Unpacking frame set components and quality inspect | 11/7/16 | .5 | A Tech | | | | | | | |
| 2 | Install Fork Set | 11/7/16 | .5 | A Tech | | | | | | | |
| 3 | Install Handle bar post and Handle bar | 11/7/16 | .5 | A Tech | | | | | | | |
| 4 | Install Seat post and seat | 11/7/16 | .5 | A Tech | | | | | | | |
| | | | | | | | | | | | |
| | Total Hours | | 2 | | | | | | | | |
| | Labor Rate | | $12 | | | | | | | | |
| | Total Cost by Labor Category | | $24 | | | | | | | | |
| | | | | | | | | | | | |
| Travel | Purpose/Activity | | Travel Dates | Location | No. Trips | No. Travelers | Per Diem | Hotel | Airline/ Car | Rental Car | Est. $$$ |
| 1 | none | | | | | | | | | | |
| 2 | | | | | | | | | | | |
| | | | | | | | | | | | |
| Materials | Item Description/Activity | | | Vendor | Qty | Unit Price | Total $ | Lead Time | Del Date | | Est. $$$ |
| 1 | Frame & Fork Set | | | Buildabike Frame Shop | 1 | $400 | $400 | | | | |
| 2 | Handle bar Set | | | Jerry's Aluminum Fabrication | | $75 | $75 | | | | |
| 3 | Seat Set | | | Outside source | | $95 | $95 | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| Subcontract | Task Statement/Activity/SOW Ref. | | | | Contractor | Location | Total $ | | Comp. Date | | Est. $$$ |
| 1 | | | | | | | | | | | |
| 2 | | | | | | | | | | | |
| | | | | | | | | | | | |
| ODC | Explanation/Activity | | | | | | Total $ | | | | Est. $$$ |
| 1 | | | | | | | | | | | |
| 2 | | | | | | | | | | | |
| | | | | | | | | | | | |

| WBS Detailed Dictionary | |
|---|---|
| **WBS Element No./Name:** <br> 1.2 Crank Set | **Date:**11/2/2016 |
| **Author/Organization:** <br> Assembly Shop | |
| **Email Address:** <br> ashop@buildabike.com | **Phone:** 123-456-7890 |

**Estimate Summary:** (Fill out using data from attached detailed worksheet)

| | |
|---|---|
| Labor | $12.00 |
| Travel | $0.00 |
| Material | $451.00 |
| Subcontracts | $0.00 |
| ODC | $19.00 |
| **Total** | **$482.00** |

**WBS Element Description:**

*Crankset is a carbon and machined alloy component purchased from a manufacturer and installed on the bicycle frame. After frame installation, the pedals are attached to the crankshaft.*

**Activity/Task Descriptions:**

*Unpack component*
*Quality control inspection*
*Install crankset on frame fitting*
*Install crankset bolts*
*Torque bolts to specified pounds*
*Grease pedals*
*Screw on pedals*

**Key Cost-Driving Assumptions:**

| | |
|---|---|
| SRAM RED Crankset from SRAM | $451 |
| Shipping | $19 |

**Task Entry/Exit Criteria:**

| | |
|---|---|
| *Task Entry: Unpack component* | *Task Exit: Ensure component quality* |
| *Task Entry: Install crankset bolts* | *Task Exit: Torque crankset bolts* |
| *Task Entry: Grease pedals* | *Task Exit: Tighten pedals* |

| Labor | Detailed Schedule Activities/Task Descriptions | Start Date or predecessor | Estimated Duration | Labor Hours by Labor Category | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Position /Skill/ Resource | Position /Skill/ Resource | Position /Skill/ Resource | Position /Skill/ Resource | Position /Skill/ Resource | Position /Skill/ Resource | Position /Skill/ Resource | Position /Skill/ Resource |
| 1 | Unpack Component | 11/7/16 | .2 | B Tech | | | | | | | |
| 2 | Quality Control Inspection | 11/7/16 | .2 | B Tech | | | | | | | |
| 3 | Install Crankset on Frame | 11/7/16 | .1 | B Tech | | | | | | | |
| 4 | Install Crank bolts | 11/7/16 | .1 | B Tech | | | | | | | |
| 5 | Torque Bolts | 11/7/16 | .2 | B Tech | | | | | | | |
| 6 | Grease Pedals | 11/7/16 | .1 | B Tech | | | | | | | |
| 7 | Screw on Pedals | 11/7/16 | .1 | B Tech | | | | | | | |
| | | | | | | | | | | | |
| | Total Hours | | 1 | | | | | | | | |
| | Labor Rate | | $12 | | | | | | | | |
| | Total Cost by Labor Category | | $12 | | | | | | | | |
| | | | | | | | | | | | |
| Travel | Purpose/Activity | | Travel Dates | Location | No. Trips | No. Travelers | Per Diem | Hotel | Airline/ Car | Rental Car | Est. $$$ |
| 1 | none | | | | | | | | | | |
| 2 | | | | | | | | | | | |
| | | | | | | | | | | | |
| Materials | Item Description/Activity | | | Vendor | Qty | Unit Price | Total $ | Lead Time | Del Date | | Est. $$$ |
| 1 | Crankset | | | SRAM | 1 | $451 | $451 | 2 weeks | 1.5 weeks | | |
| 2 | | | | | | | | | | | |
| | | | | | | | | | | | |
| Subcontract | Task Statement/Activity/SOW Ref. | | | Con-tractor | Location | Total $ | | Comp. Date | | | Est. $$$ |
| 1 | | | | | | | | | | | |
| 2 | | | | | | | | | | | |
| | | | | | | | | | | | |
| ODC | Explanation/Activity | | | | | Total $ | | | | | Est. $$$ |
| 1 | | | | | | | | | | | |
| 2 | | | | | | | | | | | |
| | | | | | | | | | | | |

| WBS Detailed Dictionary | | |
|---|---|---|
| **WBS Element No./Name:** <br> 1.3 Wheels | | **Date:** 11/2/2016 |
| **Author/Organization:** <br> Assembly Shop | | |
| **Email Address:** <br> ashop@buildabike.com | | **Phone:** 123-456-7890 |

**Estimate Summary:** (Fill out using data from attached detailed worksheet)

| | |
|---|---|
| Labor | $18.00 |
| Travel | $0.00 |
| Material | $268.94 |
| Subcontracts | $0.00 |
| ODC | $0.00 |
| **Total** | **$286.64** |

**WBS Element Description:**

*Front and rear wheel are purchased from a manufacturer and installed on the bicycle frame.*

**Activity/Task Descriptions:**

*Unpack front and rear wheels*
*Quality control inspection*
*Install front wheel*
*Install rear wheel*
*Torque wheel bolts*

**Key Cost-Driving Assumptions:**

*Mavic aluminum rims (front and rear)      $159.95*
*\*free shipping*

**Task Entry/Exit Criteria:**

*Task Entry: Unpack front and rear wheels      Task Exit: Quality control inspection*
*Task Entry: Install front and rear wheels      Task Exit: Torque bolts*

| Labor | Detailed Schedule Activities/Task Descriptions | Start Date or predecessor | Estimated Duration | Labor Hours by Labor Category | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Position /Skill/ Resource | Position /Skill/ Resource | Position /Skill/ Resource | Position /Skill/ Resource | Position /Skill/ Resource | Position /Skill/ Resource | Position /Skill/ Resource | Position /Skill/ Resource |
| 1 | Unpack Front and Rear Wheels | 11/7/16 | .2 | C Tech | | | | | | | |
| 2 | Quality Control Inspection | 11/7/16 | .2 | C Tech | | | | | | | |
| 3 | Install Front Wheel | 11/7/16 | .2 | C Tech | | | | | | | |
| 4 | Install Rear Sprocket cassette | 11/7/16 | .5 | C Tech | | | | | | | |
| 5 | Install Rear Wheel | 11/7/16 | .2 | C Tech | | | | | | | |
| 6 | Adjust alignment | 11/7/16 | .2 | C Tech | | | | | | | |
| | | | | | | | | | | | |
| | Total Hours | | 1.5 | | | | | | | | |
| | Labor Rate | | $12 | | | | | | | | |
| | Total Cost by Labor Category | | $18 | | | | | | | | |
| | | | | | | | | | | | |
| Travel | Purpose/Activity | | Travel Dates | Location | No. Trips | No. Travelers | Per Diem | Hotel | Airline/ Car | Rental Car | Est. $$$ |
| 1 | none | | | | | | | | | | |
| 2 | | | | | | | | | | | |
| | | | | | | | | | | | |
| Materials | Item Description/Activity | | | Vendor | Qty | Unit Price | Total $ | Lead Time | Del Date | | Est. $$$ |
| 1 | Front and Rear Wheel | | | Mavic | 1 | $159.95 | $159.95 | 1 week | 3 days | | |
| 2 | Rear Sprocket Cassette | | | SRAM | 1 | 108.99 | $108.95 | | | | |
| | | | | | | | | | | | |
| Subcontract | Task Statement/Activity/SOW Ref. | | | | Contractor | Location | Total $ | | Comp. Date | | Est. $$$ |
| 1 | | | | | | | | | | | |
| 2 | | | | | | | | | | | |
| | | | | | | | | | | | |
| ODC | Explanation/Activity | | | | | | Total $ | | | | Est. $$$ |
| 1 | | | | | | | | | | | |
| 2 | | | | | | | | | | | |
| | | | | | | | | | | | |

| WBS Detailed Dictionary | | |
|---|---|---|
| **WBS Element No./Name:**<br>1.4 Breaking System | | **Date:** 11/2/2016 |
| **Author/Organization:**<br>Assembly Shop | | |
| **Email Address:**<br>ashop@buildabike.com | | **Phone:** 123-456-7890 |

**Estimate Summary:** (Fill out using data from attached detailed worksheet)

| | |
|---|---|
| Labor | $32.00 |
| Travel | $0.00 |
| Material | $29.99 |
| Subcontracts | $0.00 |
| ODC | $9.00 |
| **Total** | **$70.99** |

**WBS Element Description:**

*The breaking system consists of two levers, two cables, and two calipers. Each set is attached to the frame and uses friction to stop the front and back wheels.*

**Activity/Task Descriptions:**

*Unpack levers, cables, and calipers*
*Quality control inspection*
*Attach levers to handle bars*
*Attach cables to mechanisms and frame*
*Attach calipers to frame*

**Key Cost-Driving Assumptions:**

Sunlite 26 Inch Front and Rear Brake Set $29.99
Shipping                                  $9.99

**Task Entry/Exit Criteria:**

| | |
|---|---|
| *Task Entry: Unpack levers, cables, and calipers* | *Task Exit: Quality control inspection* |
| *Task Entry: Route cables* | *Task Exit: Connect cables to lever and caliper* |

| Labor | Detailed Schedule Activities/Task Descriptions | Start Date or predecessor | Estimated Duration | Labor Hours by Labor Category | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Position /Skill/ Resource | Position /Skill/ Resource | Position /Skill/ Resource | Position /Skill/ Resource | Position /Skill/ Resource | Position /Skill/ Resource | Position /Skill/ Resource | Position /Skill/ Resource |
| 1 | Unpack Levers, Cables, and Calipers | 11/7/16 | .25 | D Tech | | | | | | | |
| 2 | Quality Control Inspection | 11/7/16 | .25 | D Tech | | | | | | | |
| 3 | Attach Levers to Handle Bars | 11/7/16 | .5 | D Tech | | | | | | | |
| 4 | Attach Cables to Mechanism and Frame | 11/7/16 | .5 | D Tech | | | | | | | |
| 5 | Attach Calipers to Frame | 11/7/16 | .5 | D Tech | | | | | | | |
| 6 | Adjust Brakes | 11/7/16 | .5 | D Tech | | | | | | | |
| | Total Hours | | 2.5 | | | | | | | | |
| | Labor Rate | | $12 | | | | | | | | |
| | Total Cost by Labor Category | | $32 | | | | | | | | |
| | | | | | | | | | | | |
| Travel | Purpose/Activity | | Travel Dates | Location | No. Trips | No. Travelers | Per Diem | Hotel | Airline/ Car | Rental Car | Est. $$$ |
| 1 | none | | | | | | | | | | |
| 2 | | | | | | | | | | | |
| | | | | | | | | | | | |
| Materials | Item Description/Activity | | | Vendor | Qty | Unit Price | Total $ | Lead Time | Del Date | | Est. $$$ |
| 1 | Lever, Cables, and Caliper Assembly | | | Sunlite | 1 | $29.99 | $29.99 | 5 week | 3 days | | |
| 2 | | | | | | | | | | | |
| | | | | | | | | | | | |
| Subcontract | Task Statement/Activity/SOW Ref. | | | | Contractor | Location | Total $ | | Comp. Date | | Est. $$$ |
| 1 | | | | | | | | | | | |
| 2 | | | | | | | | | | | |
| | | | | | | | | | | | |
| ODC | Explanation/Activity | | | | | | Total $ | | | | Est. $$$ |
| 1 | | | | | | | | | | | |
| 2 | | | | | | | | | | | |
| | | | | | | | | | | | |

| **WBS Detailed Dictionary** | | |
|---|---|---|
| **WBS Element No./Name:**<br>1.5 Shifting System | | **Date:** 11/2/2016 |
| **Author/Organization:**<br>Assembly Shop | | |
| **Email Address:**<br>ashop@buildabike.com | | **Phone:** 123-456-7890 |

**Estimate Summary:** (Fill out using data from attached detailed worksheet)

| | |
|---|---|
| Labor | $42.00 |
| Travel | $0.00 |
| Material | $166.00 |
| Subcontracts | $0.00 |
| ODC | $43.00 |
| **Total** | **$251.00** |

**WBS Element Description:**

*The shifting system comes as a kit from a supplier and is assembled on the bicycle frame.*

**Activity/Task Descriptions:**

*Unpack controls, derailleurs, and cables*
*Quality control inspection*
*Install left control*
*Install right control*
*Install front derailleur*
*Install rear derailleur*
*Install front cable*
*Install rear cable*

**Key Cost-Driving Assumptions:**

*The shifting system comes in a kit from our supplier   $166*
*Shipping                                                                    $43*

**Task Entry/Exit Criteria:**

*Entry task: Unpack parts*                         *Exit task: Quality control inspection*

| | | | | Labor Hours by Labor Category | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Labor** | Detailed Schedule Activities/Task Descriptions | Start Date or predecessor | Estimated Duration | Position /Skill/ Resource | Position /Skill/ Resource | Position /Skill/ Resource | Position /Skill/ Resource | Position /Skill/ Resource | Position /Skill/ Resource | Position /Skill/ Resource | Position /Skill/ Resource |
| 1 | Unpack Controls, Derailleurs, and Cables | 11/7/16 | .25 | E Tech | | | | | | | |
| 2 | Quality Control Inspection | 11/7/16 | .25 | E Tech | | | | | | | |
| 3 | Attach Front Control | 11/7/16 | .5 | E Tech | | | | | | | |
| 4 | Attach Rear Control | 11/7/16 | .5 | E Tech | | | | | | | |
| 5 | Attach Front Derailleur | 11/7/16 | .5 | E Tech | | | | | | | |
| 6 | Attach Rear Derailleur | 11/7/16 | .5 | E Tech | | | | | | | |
| 7 | Attach Front Cable | 11/7/16 | .25 | E Tech | | | | | | | |
| 8 | Attach Rear Cable | 11/7/16 | .25 | E Tech | | | | | | | |
| 9 | Adjust system | | .5 | E Tech | | | | | | | |
| | Total Hours | | 3.5 | | | | | | | | |
| | Labor Rate | | $12 | | | | | | | | |
| | Total Cost by Labor Category | | $42 | | | | | | | | |
| | | | | | | | | | | | |
| **Travel** | Purpose/Activity | | Travel Dates | Location | No. Trips | No. Travelers | Per Diem | Hotel | Airline/ Car | Rental Car | Est. $$$ |
| 1 | none | | | | | | | | | | |
| 2 | | | | | | | | | | | |
| | | | | | | | | | | | |
| **Materials** | Item Description/Activity | | | Vendor | Qty | Unit Price | Total $ | Lead Time | Del Date | | Est. $$$ |
| 1 | Controls, derailleurs, and cables assembly | | | MTB Bike | 1 | $29.99 | $166.50 | 1.5 week | 5 days | | |
| 2 | | | | | | | | | | | |
| | | | | | | | | | | | |
| **Subcontract** | Task Statement/Activity/SOW Ref. | | | | Contractor | Location | Total $ | | Comp. Date | | Est. $$$ |
| 1 | | | | | | | | | | | |
| 2 | | | | | | | | | | | |
| | | | | | | | | | | | |
| **ODC** | Explanation/Activity | | | | | | Total $ | | | | Est. $$$ |
| 1 | | | | | | | | | | | |
| 2 | | | | | | | | | | | |
| | | | | | | | | | | | |

| **WBS Detailed Dictionary** | | |
|---|---|---|
| **WBS Element No./Name:** <br> 1.6 Integration | **Date:** 11/2/2016 | |
| **Author/Organization:** <br> Integration Team | | |
| **Email Address:** <br> integration@buildabike.com | **Phone:** 123-456-7891 | |

**Estimate Summary:** (Fill out using data from attached detailed worksheet)

| | |
|---|---|
| Labor | $4620.00 |
| Travel | $0.00 |
| Material | $0.00 |
| Subcontracts | $0.00 |
| ODC | $0.00 |
| **Total** | **$4620.00** |

**WBS Element Description:**

*The integration element is time allotted to review and make updates to the concept of the bike build if needed as well as evaluate the design and assembly efficiency. Testing of the bicycle is also accounted for under this element.*

**Activity/Task Descriptions:**

*Concept*
*Design*
*Assembly*
*Test*

**Key Cost-Driving Assumptions:**

*(List key cost-driving assumptions, including specialized or long-lead equipment, customer furnished equipment (i.e. things that won't be expensed to the project), travel requirements, subcontracts, shipping and any other known direct charges to the project.)*

**Task Entry/Exit Criteria:**

*Task Entry: Start testing*            *Task Exit: Document testing results*

| Labor | Detailed Schedule Activities/Task Descriptions | Start Date or predecessor | Estimated Duration | Labor Hours by Labor Category | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Position /Skill/ Resource | Position /Skill/ Resource | Position /Skill/ Resource | Position /Skill/ Resource | Position /Skill/ Resource | Position /Skill/ Resource | Position /Skill/ Resource | Position /Skill/ Resource |
| 1 | Concept | 10/24/16 | 40 | Engineer | | | | | | | |
| 2 | Design | 10/31/16 | 40 | Engineer | | | | | | | |
| 3 | Assembly | 11/7/16 | 160 | | Tech | | | | | | |
| 4 | Testing | 11/20/16 | 20 | | | Test Tech | | | | | |
| | | | | | | | | | | | |
| | Total Hours | | | 80 | 160 | 20 | | | | | |
| | Labor Rate | | | $30 | 12 | 15 | | | | | |
| | Total Cost by Labor Category | | | $2400 | $1920 | $300 | | | | | |
| | Total hours: 260 | | | | | | | | | | |
| | Total cost: $4620 | | | | | | | | | | |
| | | | | | | | | | | | |
| Travel | Purpose/Activity | | Travel Dates | Location | No. Trips | No. Travelers | Per Diem | Hotel | Airline/ Car | Rental Car | Est. $$$ |
| 1 | none | | | | | | | | | | |
| 2 | | | | | | | | | | | |
| | | | | | | | | | | | |
| Materials | Item Description/Activity | | | Vendor | Qty | Unit Price | Total $ | Lead Time | Del Date | | Est. $$$ |
| 1 | | | | | | | | | | | |
| 2 | | | | | | | | | | | |
| | | | | | | | | | | | |
| Subcontract | Task Statement/Activity/SOW Ref. | | | Contractor | Location | Total $ | | Comp. Date | | | Est. $$$ |
| 1 | | | | | | | | | | | |
| 2 | | | | | | | | | | | |
| | | | | | | | | | | | |
| ODC | Explanation/Activity | | | | | Total $ | | | | | Est. $$$ |
| 1 | | | | | | | | | | | |
| 2 | | | | | | | | | | | |

| **WBS Detailed Dictionary** | |
|---|---|
| **WBS Element No./Name:** <br> 1.7 Project Management | **Date:** 11/2/2016 |
| **Author/Organization:** <br> Project Team | |
| **Email Address:** <br> projectteam@buildabike.com | **Phone:** 123-456-7899 |

**Estimate Summary:** (Fill out using data from attached detailed worksheet)

| | |
|---|---|
| Labor | 29,400.00 |
| Travel | $0.00 |
| Material | $0.00 |
| Subcontracts | $0.00 |
| ODC | $0.00 |
| **Total** | **$29,400.00** |

**WBS Element Description:**

*The project team will oversee the project in its entirety, from beginning to end.*

**Activity/Task Descriptions:**

*Project-long project management*

**Key Cost-Driving Assumptions:**

*NA*

**Task Entry/Exit Criteria:**

*Task Entry: Open project*          *Task Exit: Close project*

| | | | | Labor Hours by Labor Category | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Labor** | Detailed Schedule Activities/Task Descriptions | Start Date or predecessor | Estimated Duration | Position /Skill/ Resource | Position /Skill/ Resource | Position /Skill/ Resource | Position /Skill/ Resource | TOTAL | | | |
| 1 | Project Management | 10/24/16 | 280 | Project Manager | Project Team | Project Team | Project Team | | | | |
| | | | | | | | | | | | |
| | Total Hours | | | 280 | 280 | 280 | 280 | 1120 | | | |
| | Labor Rate | | | $30 | 25 | 25 | 25 | $105 | | | |
| | Total Cost by Labor Category | | | $7800 | 6500 | 6500 | 6500 | $29400 | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| **Travel** | Purpose/Activity | | Travel Dates | Location | No. Trips | No. Travelers | Per Diem | Hotel | Airline/ Car | Rental Car | Est. $$$ |
| 1 | none | | | | | | | | | | |
| 2 | | | | | | | | | | | |
| | | | | | | | | | | | |
| **Materials** | Item Description/Activity | | | Vendor | Qty | Unit Price | Total $ | Lead Time | Del Date | | Est. $$$ |
| 1 | none | | | | | | | | | | |
| 2 | | | | | | | | | | | |
| | | | | | | | | | | | |
| **Subcontract** | Task Statement/Activity/SOW Ref. | | | | Contractor | Location | Total $ | | Comp. Date | | Est. $$$ |
| 1 | | | | | | | | | | | |
| 2 | | | | | | | | | | | |
| | | | | | | | | | | | |
| **ODC** | Explanation/Activity | | | | | | Total $ | | | | Est. $$$ |
| 1 | | | | | | | | | | | |
| 2 | | | | | | | | | | | |
| | | | | | | | | | | | |

| WBS Detailed Dictionary | | |
|---|---|---|
| **WBS Element No./Name:**<br>1.8 Smart Phone Speaker Dock | | **Date:** 11/2/2016 |
| **Author/Organization:**<br>Assembly Shop | | |
| **Email Address:**<br>ashop@buildabike.com | | **Phone:** 123-456-7890 |

**Estimate Summary:** (Fill out using data from attached detailed worksheet)

| | |
|---|---|
| Labor | $27.00 |
| Travel | $0.00 |
| Material | $50.00 |
| Subcontracts | $0.00 |
| ODC | $7.99 |
| **Total** | **$84.99** |

**WBS Element Description:**

*The smart phone speaker dock is a purchased assembly that is attached to the bicycle handle bars and is used to provide a speaker system using the cyclist's smart phone.*

**Activity/Task Descriptions:**

*Unpack base, port, speakers, and wiring*
*Quality control inspection*
*Mount base*
*Install connector port*
*Mount speakers*
*Wire assembly*

**Key Cost-Driving Assumptions:**

| | |
|---|---|
| Bikonnect Bluetooth speaker assembly | $50.00 |
| Shipping | $7.99 |

**Task Entry/Exit Criteria:**

| | |
|---|---|
| *Task Entry: Unpack assembly parts* | *Task Exit: Quality control inspection* |
| *Task Entry: Mount components* | *Task Exit: Wire-in components* |

| Labor | Detailed Schedule Activities/Task Descriptions | Start Date or predecessor | Estimated Duration | Position /Skill/ Resource | Labor Hours by Labor Category | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Position /Skill/ Resource | Position /Skill/ Resource | Position /Skill/ Resource | TOTAL | | | |
| 1 | Unpack base, port, speakers, and wiring | 11/7/16 | .25 | E Tech | | | | | | | |
| 2 | Quality control inspection | 11/7/16 | .25 | E Tech | | | | | | | |
| 3 | Mount base | 11/7/16 | .25 | E Tech | | | | | | | |
| 4 | Install connector port | 11/7/16 | .25 | E Tech | | | | | | | |
| 5 | Mount speakers | 11/7/16 | .25 | E Tech | | | | | | | |
| 6 | Wire assembly | 11/7/16 | 1 | E Tech | | | | | | | |
| | | | | | | | | | | | |
| | Total Hours | | 2.25 | | | | | | | | |
| | Labor Rate | | 12 | | | | | | | | |
| | Total Cost by Labor Category | | $74.00 | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| **Travel** | Purpose/Activity | | Travel Dates | Location | No. Trips | No. Travelers | Per Diem | Hotel | Airline/ Car | Rental Car | Est. $$$ |
| 1 | none | | | | | | | | | | |
| 2 | | | | | | | | | | | |
| | | | | | | | | | | | |
| **Materials** | Item Description/Activity | | | Vendor | Qty | Unit Price | Total $ | Lead Time | Del Date | | Est. $$$ |
| 1 | Smart phone speaker dock assembly | | | Bikonnect | 1 | 50.00 | 50.00 | 1 week | 3 days | | |
| 2 | | | | | | | | | | | |
| | | | | | | | | | | | |
| **Subcontract** | Task Statement/Activity/SOW Ref. | | | | Contractor | Location | Total $ | | Comp. Date | | Est. $$$ |
| 1 | | | | | | | | | | | |
| 2 | | | | | | | | | | | |
| | | | | | | | | | | | |
| **ODC** | Explanation/Activity | | | | | | Total $ | | | | Est. $$$ |
| 1 | | | | | | | | | | | |
| 2 | | | | | | | | | | | |
| | | | | | | | | | | | |

References