Augmented Education

Senior Design Final Documentation

Augmented Education

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Document Preparation and Updates

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12/03/17	*Savoy Schuler*	*1.0.4*	*Chapter 3, Part 1 added.*
12/03/17	*Kenneth Petry*	*1.0.5*	*Design - File Conversion added.*

1

Overview, Description and Deliverables

1.1 Team Members and Team Name

Team Name: Augmented Education
Team Members:

- Aaron Alphonsus
- Cheldon Coughlen
- Daniel Hodgin
- Kenneth Petry
- Savoy Schuler
- Brady Shimp

1.2 Client

The project client is the South Dakota School of Mines and Technology (SD Mines). The client is intending to use the product to enhance the traditional education experience by integrating media unique to augmented reality in the classroom. The client needs a platform through which three-dimensional computer aided design files may be uploaded, cloud hosted, and delivered to an augmented reality device for rendering via a QR code associated with the uploaded file. The client will also need to be able to manage files and would like a collaboration space available for public and private sharing of files.

The project sponsor is InTouch L.L.C., a custom software solutions provider specializing in mixed reality software. The sponsor needs the product to adequately meet the expectations set forth by its contract with the client.

1.3 Project

A high level description of the project. Project environment ... Project boundaries. Project context. Technical Environment. Current systems overview.

1.3.1 Description

Augmented Education is platform allowing content made by educators with common 3D design programs to be cloud host, converted, and made on-demand available to augmented reality viewing devices and mobile phones through QR codes that may be embedded in textbooks, presentations, and other media to enhance the traditional classroom experience. Once a 3D design has been accessed via QR code and loaded, the student may take the visualization anywhere and manipulate it as needed.

1.3.2 Product Vision

Long term product evolution is visualized in the following phases. The product will be delivered to end users upon completion of the first phase. The licensing model will allow the following two phases to commence with user feedback and active revenue streams.

- Phase One - current development - QR code and multi-platform visualization.
- Phase Two - social platform to share models and collaboration both within universities and across other educational institutions.
- Phase Three - full blown platform with API ecosystem that connects all sorts of data from various applications to visualize and collaborate.

1.3.3 Phase One Features

- Users may use the website interface to upload files from 3D design programs commonly used in STEM education.
- Upon upload files will be converted in a ubiquitous file format available for AR rendering.
- The user will be returned a QR code that may be embedded in textbooks, homeworks handouts, PowerPoint presentations, emails, etc.
- When an AR headset or mobile phone is used to view the QR code, the device will locate and render the associated file in augmented reality for the user.
- Certain devices will allow the user motion control abilities to interact with the renderings so that they may be moved, scaled, rotated, animated, or "flipped through" in steps.
- Cloud hosting will make the user's files available anywhere at any time.
- The web interface will allow for the management of files (add, delete, update, download).
- Web interface privacy settings will allow designs to be private, public, or accessible only by a "group" such as an institution.

1.3.4 Intellectual Property

Patent application for elements of process pending.

1.3.5 Value

A/B testing targeting student engagement, retention, and conceptual clarity will be conducted in classrooms at the South Dakota School of Mines and Technology. Tests will be performed for several semesters wherein one section of a course taught by a given professor will be able to utilize our technology in the classroom as a learning aid and the other will not.

The time required for an engineer to be trained in the transition between student and working professional averages in the range of 1-2 years. A result of the goal of enhancing the traditional educational experience with this service is to eliminate a large portion of the training required for students to make the transition to professionals in their fields. The test results will be able to support the claim that this service will reduce the amount of time is required to successfully make this transition. With the average entry level engineering salary at about $70,500, meaning up to $141,000 or more in training expenses per entry level hire, Augmented Education aims to cut this need in half by providing students with a more immersive approach to learning and mastering concepts of design and structure. This is envisioned through noting that, should the new in-classroom experience create more effective learning, more topics and depth will be able to be taught per course.

1.3.6 Value Testimonials

"Education is an industry based on entertainment. You can learn everything about Calculus from a 1960's textbook. The information is the same today as it was then, but new textbooks are sold because they are printed in color and with better pictures. Students use Youtube tutorials to learn math because it is effective. The reason people pay for classes with instructors is because we balance presenting information with entertaining the student's interest in it. Augment reality in education is that next step in creating a more engaging and entertaining learning environment." - Dr. Jeff McGough, Computer Science and Mathematics Professor at SDSMT and founder of InTouch L.L.C.

"As an industrial engineering instructor, I run labs where students build bridges and motors using Lego bricks. I do it because it's interactive and helps communicate some of the early concepts. If I could have system where students could instead see the components of these structures in an animated 3D environment that they could interact with, I would implement it immediately." - Dr. Adam Piper, Industrial Engineer Professor at SDSMT

1.3.7 Mission Statement

InTouch L.L.C. pursues the mission of developing augmented reality and virtual reality (known together as "mixed reality") solutions for education and enterprise. Hardware and entertainment software for this technology have matured over the past decade while innovators have, until now, overlooked the opportunity to leverage this same technology for applications such as classroom education, 3D advertising, architecture design, and pre-construction modeling, and more.

1.3.8 Elevator Pitch

Augmented reality, commonly called AR, is a technological advancement that allows individuals to overlay virtual animations into the real world using an optical viewing aid to augment the user's vision of their surroundings. Though hardware and entertainment software is blossoming, this cutting edge technology has yet to penetrate the eager and profitable industry of higher education. Augmented Education by InTouch L.L.C. provides a platform for harnessing this new technology to enhance the traditional education experience with an effective and engaging new medium. By orienting itself at instructors and students, Augmented Education is a cloud hosted service that opens up multiple channels of revenue and sets in place an infrastructure and a connection through which numerous value-added services can be provided at the user's pleasure.

To demonstrate the Augmented Education service, think back to the last time you were in class learning about a 3D design, Calculus graph, or physics problem. No instructor had a choice other than to present 3D content on a 2D chalkboard or projector. Imagine next year you sit in a South Dakota School of Mines and Technology classroom where the instructor asks you to use your phone or a headset to view their presentation. What was once a QR code in the presentation is now a 3D shape appearing in the environment with you. Using your hands, you may bring it closer, manipulate it, turn it around, and perhaps flip through a sequence of animations using your fingertips.

Architecture and civil engineering students often design structures and buildings with 3D design software. With this platform, a student or instructor need only to upload their file to the Augmented Education website before they are able to use an augmented reality headset to scale their design to real world size and step through it, viewing it from the inside or placing it next to a campus building for scale. As collaboration grows, these students may soon be able to use this platform to virtually inspect the architecture of famous buildings from around the world.

The first area Augmented Education is going to hit is the South Dakota School of Mines and Technology which has already purchased a one-year license for Augmented Education. This also is where Augmented Education is currently being tested for results in student engagement, retention, and conceptual clarity. Augmented Education intends to spread to textbook companies and other STEM programs around the Midwest by partnering in sales with the 3D modeling software companies that are most widely used in the STEM community. STEM programs are an excellent starting point to find early adopters like SD Mines due to their intrinsic need to stay at the forefront of technology and innovation.

Augmented Education will offer different tiers of licensing with increasing cloud storage and value-add services for each, with a basic license starting around $7,000 for one terabyte private storage and five terabytes downstream bandwidth, DDoS protection, and load balancing.

1.3.9 Purpose of the System

The purpose of this product is to enhance the value of CAD software common to STEM programs and provide a higher quality education by giving students the ability to view CAD visualizations in a true 3D environment allowing students to fully perceive depth, scale, volume, and attributes through object manipulation features.

1.4 Business/Market Need

Use this section to define what business need exist and how this software will meet and/or exceed that business need. How do you make money!! What is the revenue model? What is the market? Who are customers?
Example: Mouse Detector Phone App

Product Description: iPhone based app that can detect the high frequency sounds of mice and locate them.

Key Business Goals: Product introduced in the second quarter 2009

- 50% gross margin
- 15% share of mouse trap market

Primary Market: Consumers

Secondary Markets: Lazy cats

Assumptions:

- Available from App store
- Survillence mode
- Low power consumption
- Autodial on detection

Stakeholders:

- User
- Retailer
- Sales Force
- Production
- Legal department

Certifications: Apple, Cat Fancy Magazine

Product Description: AR CAD visualization platform.

Key Business Goals: Product introduced in the second quarter 2018.

- 40% gross margin
- 80% share of CAD to AR education market

Primary Market: CAD software distributors

Secondary Markets: Textbook publishers

Secondary Markets: Higher education institutions

Assumptions:

- Platform integrates with AR devices
- Platform accepts file formats from wide range of CAD programs
- Higher education institutions invest in AR technologies

Stakeholders:

- User (Faculty)
- User (Students)
- Department
- Institution
- Software Distributor
- Textbook Publisher

Certifications: South Dakota School of Mines and Technology

1.5 Deliverables

Provide a complete description of the client requested deliverables. This section should be the section that your software contract refers to. (e.g. prototype, documentation, code, users manual, ...)

1.5.1 Software

The sponsor deliverable is a software tool chain to save, retrieve, and view 3D models produced in popular modeling software. The two main components are:

1. A website to manage users' files
   - Upload files
   - Save files
   - Run software to convert between 3D file types
   - Serve files back to users
2. A file conversion program to convert a users uploaded file into a viewable file type
   - Convert a given 3D model into a common file type to be stored on the website
   - Convert the common file type to the type needed to be viewd on an Augmented Reality device

The client deliverable is a One-Year Early Adopter License for the platform that operates with:

- 1 terabyte private storage
- 5 terabytes downstream bandwidth (per month)
- DDoS protection
- load balancing

1.5.2 Hardware

Test the flow of the website and file conversion software on popular Augmented Reality devices, which may include:

- Microsoft Hololens
- Meta 2
- Mobile devices running IOS and/or Android

1.5.3 Documentation

And so on. Anything that your contract states that you will deliver to the client.

The sponsor will be delivered product documentation for the purpose of further feature development. The client will be provided a product User Manual.

2

User Stories, Requirements, and Product Backlog

2.1 Overview

The overview should take the form of an executive summary. Give the reader a feel for the purpose of the document, what is contained in the document, and an idea of the purpose for the system or product.

The user stories are provided by the stakeholders. You will create he backlogs and the requirements, and document here. This chapter should contain details about each of the requirements and how the requirements are or will be satisfied in the design and implementation of the system.

Below: list, describe, and define the requirements in this chapter. There could be any number of sub-sections to help provide the necessary level of detail.

2.2 User Stories

This section can really be seen as the guts of the document. This section should be the result of discussions with the stakeholders with regard to the actual functional requirements of the software. It is the user stories that will be used in the work breakdown structure to build tasks to fill the product backlog for implementation through the sprints.

This section should contain sub-sections to define and potentially provide a breakdown of larger user stories into smaller user stories. Each component must have a test identified, meaning you need to know how you plan to test it. If a requirement is not testable, then some justification needs to be made on why the requirement has been included. The results of the tests should go in the testing chapter.

2.2.1 Round Zero

Main Goal:

View a Maple 3D model on a Microsoft Hololens

2.2.1.a AR Rendering

- As a faculty member, I want a Maple file to be automatically converted into an AR Tag on a cloud server.
- As a user, I want to be able to view an AR tag through a Microsoft Hololens to render a 3D model.

2.2.1.b Website Hosting

- As a faculty member, I want to upload a Maple 3D model to a cloud server.
- As a faculty member, I want to be able to download the AR tag for my document from a cloud server.

2.2.1.c Sprint Zero Breakdown

User stories can be broken down into two main categories: AR Rendering and Website Hosting. Half of the team will primarily work on the AR Rendering stories, and the other half the Website Hosting stories. The mail goal of these user stories is to view a 3D model from the Maple software on a Microsoft Hololens where the files are stored and managed in the cloud.

2.2.2 Round One

2.2.2.a AR Rendering

- As a user, I want to be able to view surface materials
- As a user, I want to be able to slice a 3D model and view a section of the model
- As a user, I want to be able to be able to switch between models quickly in the AR device

2.2.2.b Sprint Three Breakdown

The clients shared some of their requests for how the files are rendered and viewed in an AR device. These include viewing surfact

2.2.3 User Story #2

2.2.3.a User Story #2 Breakdown

User story #2 ....

2.2.4 User Story #3

2.2.4.a User Story #3 Breakdown

User story #3 ....

2.3 Requirements and Design Constraints

Use this section to discuss what requirements exist that deal with meeting the business need. These requirements might equate to design constraints which can take the form of system, network, and/or user constraints. Examples: Windows Server only, iOS only, slow network constraints, or no offline, local storage capabilities.

2.3.1 System Requirements

The basic system requirements to use the website are to have a web browser installed with internet access. The user must have access to modeling software or a method to create/provide 3D models to the website.

In order to fully use the product, a user must have an Augmented Reality device. Each device may have different system requirements.

For example, the Meta 2 requires a seperate computer in order to run. The minimum and recommended specifications are listed below. The list was crated in November 2017.

	Minimum	Recommended
OS	Windows 10 (64 bit)	Windows 10 (64 bit)
CPU	Intel i7-4770	Intel i7-6700
RAM	8GB DDR3	16GB DDR4
GPU	NVIDIA GTX 960	NVIDIA GTX 970
Hard Drive	2GB Free Space	2GB+ Free Space
I/O Ports	1X HDMI 1.4b and 2X USB 3.0 ports	1X HDMI 1.4b and 2X USB 3.0 ports
3D Engine	Unity 5.6 or higher	Unity 5.6 or higher

More up to date requirements can be found on the Meta 2 website at: `https://buy.metavision.com/`

2.3.2 Network Requirements

What are they?

2.3.3 Development Environment Requirements

What are they? Is the system supposed to be cross-platform?

2.3.4 Project Management Methodology

The stakeholders might restrict how the project implementation will be managed. There may be constraints on when design meetings will take place. There might be restrictions on how often progress reports need to be provided and to whom.

2.4 Specifications

Any specifications that need to be understood? Put it here.

2.5 Product Backlog

The full initial product backlog should go here. The sprint backlogs are located in the prototypes chapter.

- What system will be used to keep track of the backlogs and sprint status?
- Will all parties have access to the Sprint and Product Backlogs?
- How many Sprints will encompass this particular project?
- How long are the Sprint Cycles?
- Are there restrictions on source control?

2.6 Research or Proof of Concept Results

This section is reserved for the discussion centered on any research that needed to take place before full system design. The research efforts may have led to the need to actually provide a proof of concept for approval by the stakeholders. The proof of concept might even go to the extent of a user interface design or mockups.

2.7 Supporting Material

This document might contain references or supporting material which should be documented and discussed either here if appropriate or more often in the appendices at the end. This material may have been provided by the stakeholders or it may be material garnered from research tasks.

3

Project Management

This section provides some housekeeping type of information with regard to the team, project, environment, etc.

3.1 Team Member's Roles

Product development is divided into two teams:

1. Web Team:
    - Daniel Hodgin
    - Brady Shimp (Scrum Master)
    - Savoy Schuler
2. Conversion Software Team:
    - Aaron Alphonses
    - Cheldon Coughlen (Team Lead)
    - Kenneth Petry

The website team shares the responsible for developing the website, file upload and download abilities, an API for connecting the website to the conversion software, user log in protected profile functionality, user abilities to manage files, social/collaborative features, file permissions and cloud hosting abilities.

The conversion software shares the responsible for developing software to convert uploaded file types into file types render-able by AR devices and applications needed by devices for reading and rendering files from QR codes.

As Team Lead, Cheldon Coughlen acts as the team representative to the sponsor and client and brokers communication between these parties and the development team.

As Scrum Master, Brady Shimp manages the task board and delegates tasks.

3.2 Project Management Approach

This section will provide an explanation of the basic approach to managing the project. Typically, this would detail how the project will be managed through a given Agile methodology. The sprint length (i.e. 2 weeks) and product backlog ownership and location (ex. Trello) are examples of what will be discussed. An overview of the system used to track sprint tasks, bug or trouble tickets, and user stories would be warranted.

The product is being approached with Agile methodology and two week sprints. InTouch L.L.C. COO Brady Shimp owns the backlog which is located on the GitHub project repository. Mr. Shimp creates tickets which are placed in the backlog. Developers will select tickets, attach their name to it, and move it to an "In Progress" bin to denote activity. Tickets may be assigned by Mr. Shimp or selected by unoccupied developers. Priority levels are assigned to tasks, bugs, and user stories to indicate the priority of the respective ticket. These priority levels may be assessed by whether the ticket roadblocks other development, necessity of the feature based on milestones, or urgency otherwise established.

3.3 Stakeholder Information

- InTouch L.L.C.: Custom software solutions company needs product to fulfill contractual obligations to client.
- South Dakota School of Mines and Technology: Higher education STEM university needs investment in product to result in development of circular material and provide application in classrooms.

3.3.1 Customer or End User (Product Owner)

The direct customer is the South Dakota School of Mines and Technology with faculty members such as Dr. Jeff McGough, Dr. Christer Karlsson. Dr. Adam Piper, Dr. Brent Deschamp, and Dr. King Adkins constituting an initial base of end users. These faculty members are directly involved with the creative direction of the product and are the indirect source of the product backlog. The faculty members meet monthly with the development team to develop user stories. Two faculty members, Dr. Jeff McGough and Dr. Christer Karlsson, meet weekly with the development team to provide direct input on the backlog and direction of the product.

3.3.2 Management or Instructor (Scrum Master)

Brady Shimp, COO of InTouch L.L.C., is the Scrum Master of this project. Brady developed the project timelines and milestones and actively manages the task board and drives delegation. Brady leads sprint meetings and stand-ups.

3.3.3 Investors

No investors are involved with the Sponsor or its product.

3.3.4 Developers –Testers

Developers are assigned components of the platform on constant rotation. Each developer is required to play all roles regarding their component. This includes, but is not limited to, designing, architecting, managing, developing, and testing their solution. In the designing and architecting phase, a developer is required to consult the members of their development team to ensure proper planning and compatibility. Each developer must have their functioning implementation thoroughly verified by another team member before merging their solution into the development branch.

As a whole, the project development and testing is managed by Brady Shimp. Mr. Shimp manages the development of the project through the task board by creating, delegating, and monitoring the completion of tickets.

3.4 Budget

There is no budget actively established for the project. Pending official adoption of the product by the South Dakota School of Mines and Technology, proper withholdings will be made to support a year of operation of the product. All other profit will be allocated evenly among the student development team.

3.5 Intellectual Property and Licensing

All intellectual property and ownership is retained by InTouch L.L.C..

Licenses for Visual Studio 2017 need not be purchased as students are already granted licensed access. All other third party resources utilized are available under the MIT License or likewise.

3.6 Sprint Overview

If the system will be implemented in phases, describe those phases/sub-phases (design, implementation, testing, delivery) and the various milestones in this section. This section should also contain a correlation between the phases of development and the associated versioning of the system, i.e. major version, minor version, revision.

All of the Agile decisions are listed here. For example, how do you order your backlog? Did you use planning poker?

3.7 Terminology and Acronyms

- Augmented Reality (AR): hardware and software that, together, superimpose computer-generated images on a user's view of the real world. Often, this composite view may be interacted with.
- Virtual Reality (VR): hardware and software that, together, create a computer-generated simulation of a three-dimensional image or environment. Often, this simulation may be interacted with.
- Mixed Reality (MR): the overlap in domain space of augmented reality and virtual reality.
- Microsoft HoloLens: portable and cordless augmented reality viewing device.
- Meta Meta 2: augmented reality viewing device that must be connected to a computer and power outlet.
- Mira Prism: augmented reality viewing device that leverages a user's mobile device.
- Oculus Rift: virtual reality viewing device.
- QR Code: machine readable matrix barcode optical label.
- Cloud: off-site computing and digital storage resources accessed via the internet.
- .fbx: model file type that may be rendered by most AR devices on the market.

3.8 Sprint Schedule

The sprint schedule. Can be tables or graphs. This can be a list of dates with the visual representation given below.

3.9 Timeline

Gantt chart or other type of visual representation of the project timeline.

3.10 Development Environment

Both teams agreed to use the Microsoft ecosystem to develop the product.

3.11 Development IDE and Tools

The IDE of choice for the website and file conversion team is Visual Studio 2017 Enterprise Edition.

To compile the web conversion software two libraries are needed.

- Autodesk's FBX SDK is required to export .fbx files. It must be installed in a folder located in the project directory nmed F̈BX SDK. The download can be found at: `http://usa.autodesk.com/adsk/servlet/pc/item?siteID=123112&id=26416244`. The Windows VS2015 version must be installed.
- Open Asset Import Library supports a wide variety of import and export file types. The download can be found at: `http://assimp.org/main_downloads.html`. Version 3.1.1 is what was used in the project.

3.12 Source Control

Which source control system is/was used? How was it setup? How does a developer connect to it?

3.13 Dependencies

Website

File Conversion

FBX SDK A library produced by Autodesk that converts from a select few file types to the .fbx file that is easily viewed on Microsoft supported software (Windows 10, Hololens).

Open Asset Import Library A library the reads and writes multiple file types (does not export to .fbx).

3.14 Build Environment

How are the packages built? Are there build scripts?

3.15 Development Machine Setup

Pull the git repository with both the Website and File Conversion code located at: `https://github.com/SavoySchuler/ARFE`

File Conversion There are two libraries that need to be installed: Assimp and FBX SDK.

FBX SDK

1. Got to the following link and install the FBX SDK.
   - `http://usa.autodesk.com/adsk/servlet/pc/item?siteID=123112&id=26416244`
   - Use the installer under: Windows / FBX SDK 2018.0 VS2015
2. Copy the FBX SDK folder to the directory with the source code (the deepest FileConverion folder)
   - At the location of the installiation, the file structure should be: Autodesk/FBX/FBX SDK/
   - Copy the FBX SDK folder to the source code directory.

Assimp

1. Go to the following link and install the Assimp software.
   - `http://assimp.org/main_downloads.html`
   - Version 3.1.1 is what was used during development.
2. From the installiation location, copy the Ässimpf̈older into the deeper FileConverion directory.
   - Paste the folder into the same folder as the source code of the File Conversion.
3. Copy FileConverion/Assimp/bin/x86/assimp-vc140-mt.dll to the same directory as the source code.

4

Design and Implementation

4.1 Systems Goals

Briefly describe the overall goals this system plans to achieve. These goals are typically provided by the stakeholders. This is not intended to be a detailed requirements listing. Keep in mind that this section is still part of the Overview.

4.2 System Overview and Description

Provide a more detailed description of the major system components without getting too detailed. This section should contain a high-level block and/or flow diagram of the system highlighting the major components. See Figure 4.1. This is a floating figure environment. LaTeX will try to put it close to where it was typeset but will not allow the figure to be split if moving it can not happen. Figures, tables, algorithms and many other floating environments are automatically numbered and placed in the appropriate type of table of contents. You can move these and the numbers will update correctly.

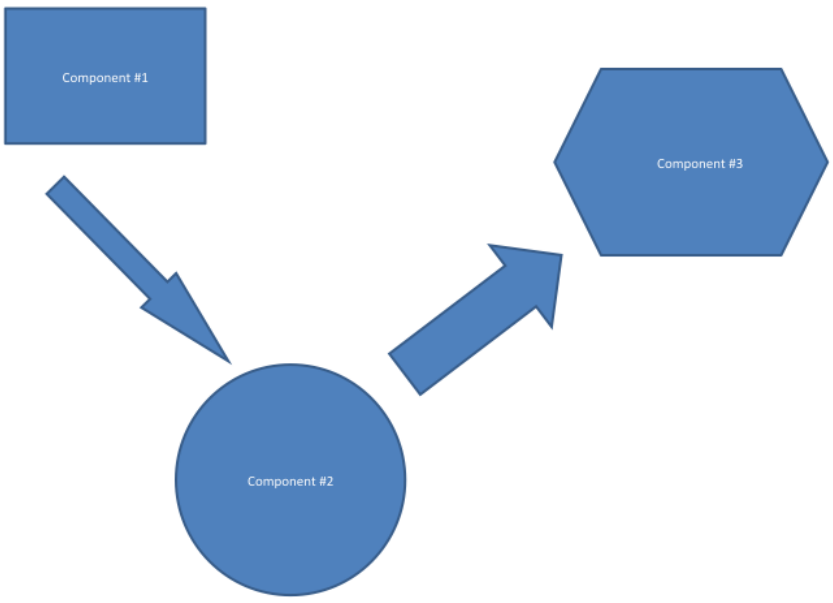


Figure 4.1: A sample figure .... System Diagram

4.2.1 Website

Describe briefly the role this major component plays in this system.

4.2.2 File Conversion

The file conversion software converts files between common 3D file types. It

Input file type	Output file type
.fbx	.fbx
.dae	.dae
.blend	.obj
.obj	.stl
.stl	.ply
.ply	

Table 4.1: Supported File Types

The above table 4.1 lists the minimum file types supported. More may be supported

4.3 Technologies Overview

This section should contain a list of specific technologies used to develop the system. The list should contain the name of the technology, brief description, link to reference material for further understanding, and briefly how/where/why it was used in the system. See Table 4.2. This is a floating table environment. LaTeX will try to put it close to where it was typeset but will not allow the table to be split.

Table 4.2: A sample Table ... some numbers.

7C0	hexadecimal
3700	octal
11111000000	binary
1984	decimal

4.4 Architecture and System Design

This is where you will place the overall system design and the architecture. This section will be very detailed and should be image rich. There is the old phrase *a picture is worth a thousand words*, in this class it could be worth hundreds of points (well if you sum up over the entire team). One needs to enter the design and why a particular design has been done. THIS IS THE CORE OF THE COURSE.

It is important for you to say why as much as what.

4.4.1 Design Selection

Failed designs, design ideas, rejected designs here.

4.4.2 Data Structures and Algorithms

Describe the special data structures and any special algorithms.

4.4.3 Data Flow

4.4.4 Communications

4.4.5 Classes

4.4.6 UML

4.4.7 UX

4.4.8 UI

4.4.9 MVVM, etc

4.5 Website

4.6 File Conversion

4.6.1 Overview

A major tool in the project is the File Conversion Software. The file conversion software aims to read in many different 3D model file types (.fbx, .obj, .dae, ...) and convert them to another desired 3D file type. A brief listing of suported file types is in table 4.1.

This tool is intended to be used on the back end of the website. Whenever a user uploads a file, it can be converted to a common file type, using this tool. When the user requests a download on an AR device, the type may be different than what is stored. Therefore, the tool will be used to convert the file before it is sent to the user.

Since this tool is intended to be used on the backend of a website, it is appropriate to use a command line interface. The flags that can be passed to the program are listed below:

-i	Input file name (can specify full path), inferrs the input file type from the name
-o	Name (or full path) to write the converted file, inferrs the export file type from the name
-odir	The path to the directory, the file name is inferred from the input file name
-t	The file type (.fbx, .obj, .dae, ...) to export to

Note the -t flag is only needed when using the -odir flag. The -odir just specifies which directory to write to, but not the file type. Therefore, more information is needed in order to export to a file. The -o flag will parse the file name and extract the file type from the -i file name.

An example command to run:

.\FileConversion.exe -i C:\SomePath\someFile.obj -t fbx -odir C:\SomeOtherPath\

This will convert a file named someFile.obj located at C:\SomePath\to an FBX file named someFile.fbx located at C:\SomeOtherPath\

4.6.2 Technologies Used

The code for the file conversion toolset is written in C++. There are two main external libraries used:

- Open Asset Import Library (assimp)
  - `http://assimp.org/main_downloads.html`
- FBX SDK
  - `http://usa.autodesk.com/adsk/servlet/pc/item?siteID=123112&id=26416244`

Multiple librarires are needed to support the file types that are necessary for common AR rendering. In the Microsoft Hololens, the default 3D viewer supports FBX files very easily. Therefore, it was decided that the conversion software needed to export to FBX. The best tool to do so i sthe FBX SDK, sice FBX is a propriatary file format from Autodesk. However, the FBX SDK has a very limited range of file types it will read write. Therefore, the Open Asset Import Library is used to better support a wide array of file types. So in using assimp and the FBX SDK together, the converison software can support a wide range of both import and export file types.

4.6.3 Data Flow

There are four main paths data can flow.

- assimp
  - import and export all with the assimp library
- FBX SDK
  - import and export all with the FBX SDK library
- assimp $\rightarrow$ FBX SDK
  - import with assimp, export to temporary file type
  - import temporary file with FBX SDK, export to final file
- FBX SDK $\rightarrow$ assimp
  - import with FBX SDK, export to temporary file type
  - import temporary file with assimp, export to final file

This outlines that the program tries to use a single library to convert the file before using multiple. If a singe library is unable to read and write the needed formats, it tries to import with one, export to a temporary format, and export with the other. An example of using a simgle library is if a user wants to read a .obj and write to a .fbx. The FBX SDK can handle read and writing those particular file types, so it will be used ot do the conversion. An example of needing to use both libraries is if a user wants to convert a .ply to a .fbx. Assimp can read .ply files, but cannot write to .fbx. The FBX SDK can write to .fbx files but not read .ply. Therefore, assimp is used to read the .ply, write to a .dae (common file type). The FBX SDK then reads the .dae and writes to a .fbx.

4.6.4 Design Details

4.6.4.a Overview

The file converison software is written in C++. The structure of the program is object oriented, where classes are defined where the functionality needed in the program is defined. Instances of the classes will be created when needed. The high level view of the program is:

1. Parse command line arguments
2. Convert the file
3. Print error messages if errors occured

The parsing the command line arguments section may fail if the user does not supply the correct arguments. A flag is set after parsing to indicate whether the correct arguments were supplied. If an error occurrs during file conversion, the error will be denoted by an integer error code. During file conversion, if a single library could not convert it on its own, an extra file will be created as an intermediate file.

4.6.4.b Code Structure

The file conversion software is broken into two main sections: parameter parsing and file conversion.

Parameter Parsing
The parameter parsing code is in a class called ParseParameters. ParseParameters has a constructor that takes the number of command line arguments, and the command line arguments. It will parse the values needed out into member variables that are public. It will ignore invalid arguments, and print a usage statement if the correct arguments are not supplied. When printing the useage statement, cout is used to write to standard out.

After processing the command line arguments, the member variables in the class will be set with the appropriate information. The member variables are:

success	bool True if the needed information is set, false otherwise
inputFile	string The name/path of the file to convert
outputFile	string The name/path of the file to export to
fileExtention	string The file extention of the output file

If the success variable is false, the other member variables possibly have bad data that should not be used.

File Conversion
The file conversion portion of the progarm is the meat of the functionality. It takes an input file, and tries to convert it to the file type requested. This seciton implements the two libraries. Each library is implemented in a class inherited from an abstract AbstractConverter converter class. The two library implementation classes are called AssimpConverter and FBXConverter. A class named FileConverter contains the logic on determining which library/libraries to use when converting the file.

AbstractConverter
The AbstractConverter is an abstract class that acts like an interface for the child classes. The abstract methods are:

- SupportsInputFileType
  - Return true if the converter can read in a file with a given file type
- SupportsOutputFileType
  - Return true if the converter can write to a file with a given type
- ConvertFile
  - Performs the file conversion

An emum is defined, called Result, that provides a more self documenting way to return information from functions. Values less than zero are errors, while value greater than zero are successes. The levels of the enum are:

Failed
IOError
SceneNotLoaded
NotInitialized
FileTypeNotSupported
Success

AssimpConverter
The AssimpConverter inherits from the AbstractConverter and uses the Open Asset Import Library for file conversion. The file type supported methods are implementd by adding the supported file types to a set, and checking whether the questionable type is in the set. The list of file types supported is taken from the Open Asset Import Library website's list of supported input file types. The output file types list comes from the same location. When converting a file, optimizations may be performed on the file to remove unnecessary/duplicate information. For example, when importing a file, repeatedverticies in the meshes will be condensed into one, to help reduce the size of the file.

FBXConverter

The FBXConverter inherits the AbstractConverter and uses the FBX SDK to import and export files. THe file type input and output lists are derived from the FBX SDK website.

FileConverter

The FileConverter looks at the input and output file types, and determines which library/libraries needed to convert the file. It tries see if a single library can do the conversion. If not, then both libraries are used by exporting from one into a temporary file (.dae) and converting that to the final file type. After comparing the read/write lists between the libraries, the DAE file type was common between the two, and included features that other file types did not. Therefore, it was chosen to have DAE as the common intermediate file type.

5

System and Unit Testing Design

This section describes the approach taken with regard to system and unit testing. This chapter does not describe the outcome of those tests. That will be described in the prototypes chapter.

5.1 Overview

The testing approach is based on manual testing so far. The website and file conversion are tested separately, with their integration being tested as well. Our tests ensure that the features provided in our user stories are met and work as intended. The tests for each user story can be found below.

5.2 Dependencies

The main testing framework for the Azure website is Microsoft's C# testing framework. The file conversion needs no external testing framework as it is tested manually for accuracy.

5.3 Test design and setup

There are currently no unit tests for the website, as all testing has been done by hand so far. We may utilize Microsoft's C# testing framework in the future. The file conversion is performed manually, as we cannot validate accuracy of conversion through software alone.

Upload Maple 3D file to a cloud server - tested by manually accessing the website and uploading a file, then checking that it is present in the filesystem.

Maple 3D file will be automatically converted to a QR tag - this feature is not yet implemented, but the conversion test was tested manually as a part and the as a system with the website.

Download the QR tage for a model from the cloud server - tags for models are not yet available, but a user can download a converted version of their uploaded file.

View the QR tage with an AR headset and render the 3D model - QR tags are not yet implemented, but we successfully rendered 3D models on the hololens by accessing files through OneDrive or using the converted file from the upload page.

Convert a 3D file from one format to another - the file conversion is manually tested using a variety of inputs to ensure robust and consistent performance. As there are two libraries (assimp and FBX SDK), they were both manually tested for simple functionality as the were implemented. After the two were put together, we had more tests to run. We tried sending through file types that can all be inputs for assimp and made sure that the file made it to the FBX section and output the correct file format (.fbx). There are many different inputs so we sent through files for the common types we would expect such as .stl, .obj, .dae etc. Unsupported file types were also tested and we received appropriate errors from the conversion libraries. We also tried large files so we would know how long we could expect the system to take to process files of different sizes. There are certain limitations on the hololens hardware for file size and complexity that can be rendered, so we are aware of the limitations on that end and will inform our users appropriately. We also plan on testing files with textures embedded in them, to

make sure the textures get converted with the file. Our system does not yet support textures so this feature will be tested as it is developed.

All other user stories post-MVP are not yet implemented or tested, and they pertain mostly to secure accounts, file permissions, and more advanced features on the hololens viewer. These features will be tested appropriately through manual testing or the C# framework as they are developed.

5.4 System Testing

Testing our system involved manually using our software as a user would. The test relied on being able to access the website, uploading a file, and being able to download the converted version of it. This was successfully tested through manual tests and these features were present in our MVP.

5.5 System Integration Analysis

We performed some manual tests while integrating the file conversion with the website. The integration was relatively simple and required us only to upload the executable to Azure and call it as we regularly would from our PC. We successfully uploaded, converted, and downloaded files using the website to access the file conversion software.

5.6 Risk Analysis

There are two main risks associated with our project. These risks pertain to the functionality of the product itself and the security of our data. Minimizing and preventing these risks are vital to providing quality software and positive relationships with users.

The first risk is that the software may fail to convert or render a given input file. This could be caused by the file being too large or complex for our system to handle, or part of the file is corrupt.

File security poses the other risk to our project, as some of the files uploaded may contain sensitive or confidential data. We want to ensure that we maintain our users' privacy and trust as we strive to ensure only specified people can access certain files.

5.6.1 Risk Mitigation

To mitigate these risks, we have multiple strategies implemented to prevent the issues from happening in the first place.

Addressing the first risk of failed conversion or rendering, we will ensure product quality through rapid iteration and testing of MVPs. We have a variety of test files of varying sizes and formats that we have run through our system to make sure we cover many of the common (and uncommon) use cases. Additionally, we aim to stay informed on the documentation of the libraries and platforms we use in our software to make sure we understand the capabilities and limitations of the tools we are using. Especially for the file conversion software, we have researched which file types can be run through the libraries and have implemented that functionality in our product and need to communicate to our users which file types are acceptable for our system.

For the second risk of data security, we try our best to examine and remove any possible security holes in our data flow. We will need to analyze the website code to limit file access only to properly-privileged users. We also plan to implement features such as https and end-to-end encryption to maintain data security on our connections.

6

Sprint Results and Prototypes

This chapter is for recording the results of each sprint and documenting the evolving product. It is a historical record of what you accomplished in 464/465. This should be organized according to Sprints. It should have the basic description of the sprint deliverable and what was accomplished. Screen shots, photos, captures from video, etc should be used. Expect this to be a long chapter.

6.1 Sprint 0 Report

6.1.1 Sprint Backlog

- Define the Minimum Viable Product (MVP)
- Define the toolchain
- Identify use cases and create user stories
- Estimate a timeline for the development process

6.1.2 Deliverable

- Timeline (tentative)
  - 9/18:
    - Define user stories.
    - Define the MVP.
    - Define the toolchain.
    - Create tentative timeline.
  - 10/2:
    - Sample website setup with file upload to web root directory.
  - 10/16:
    - First client presentation documents.
    - Standalone file conversion.
  - 10/30:
    - File conversion on Azure.
    - Download original and converted file from Azure.
  - 11/13:
    - Generate unique AR Tags that map to each converted file on Azure.
  - 11/27:
    - User accounts and login on the Azure site.
  - 12/4 - 12/11:
    - File sharing permissions between users

6.1.3 Successes and Failures

6.1.3.a Successes

- Defined the MVP

Upload a Maplesoft 3D object file to a website. Have the website perform an automatic file conversion and present the user with an AR Tag. When the user views the AR Tag through an AR device, download and render the 3D object file.

- Decided to develop with the Microsoft Hololens being the primary supported AR device.

A conscious decision was made in accordance with current technologies and the Mobile Computing Grant awarded to the South Dakota School of Mines and Technology that this service aims to satisfy to keep development centered around the Hololens and other Microsoft supported or compatible tools and services.

- Decided to use Azure for cloud hosting services

The decision was between using Azure cloud services or Amazon Web Services. Azure was voted as the better of the two options on the grounds that the primary device we intend to make work using this service is the Microsoft Hololens and compatibility conflicts should be avoided.

- Created initial user stories
  - As a faculty member, I want to upload a maple file to a cloud server.
  - As a faculty member, I want the maple file to be automatically converted to an AR tag on the cloud server.
  - As a faculty member, I want to be able to download the AR tag for my document from the cloud server.
  - As a user of this product, I want to be able to view the AR tag through a Microsoft Hololens to render a 3D model.
- Estimated tentative development timeline. (See 6.1.2)

6.1.4 Sprint Review

6.1.5 Sprint Retrospective

6.1.6 Sprint Analytics

Place your burndown charts, team velocity information, etc here if they are not discussed above.

6.2 Sprint 1 Report

6.2.1 Sprint Backlog

6.2.2 Deliverable

6.2.3 Results of testing

6.2.4 Successes and Failures

6.2.5 Modifications required (product backlog, design, requirements, etc)

6.2.6 Sprint Review

6.2.7 Sprint Retrospective

6.2.8 Sprint Analytics

Place your burndown charts, team velocity information, etc here if they are not discussed above.

6.3 Sprint 2 Report

6.3.1 Sprint Backlog

6.3.2 Deliverable

6.3.3 Results of testing

6.3.4 Successes and Failures

6.3.5 Modifications required (product backlog, design, requirements, etc)

6.3.6 Sprint Review

6.3.7 Sprint Retrospective

6.3.8 Sprint Analytics

Place your burndown charts, team velocity information, etc here if they are not discussed above.

6.4 Sprint 3 Report

6.4.1 Sprint Backlog

6.4.2 Deliverable

6.4.3 Results of testing

6.4.4 Successes and Failures

6.4.5 Modifications required (product backlog, design, requirements, etc)

6.4.6 Sprint Review

6.4.7 Sprint Retrospective

6.4.8 Sprint Analytics

Place your burndown charts, team velocity information, etc here if they are not discussed above.

6.5 Sprint 4 Report

6.5.1 Sprint Backlog

6.5.2 Deliverable

6.5.3 Results of testing

6.5.4 Successes and Failures

6.5.5 Modifications required (product backlog, design, requirements, etc)

6.5.6 Sprint Review

6.5.7 Sprint Retrospective

6.5.8 Sprint Analytics

Place your burndown charts, team velocity information, etc here if they are not discussed above.

7

Release – Setup – Deployment

This section should contain any specific subsection regarding specifics in releasing, setup, and/or deployment of the system.

7.1 Deployment Information and Dependencies

Are there dependencies that are not embedded into the system install?

7.2 Setup Information

How is a setup/install built?

7.3 System Versioning Information

How is the system versioned?

8

User Documentation

This section should contain the basis for any end user documentation for the system. End user documentation would cover the basic steps for setup and use of the system. It is likely that the majority of this section would be present in its own document to be delivered to the end user. However, it is recommended the original is contained and maintained in this document.

8.1 User Guide

The source for the user guide can go here. You have some options for how to handle the user docs. If you have some `newpage` commands around the guide then you can just print out those pages. If a different formatting is required, then have the source in a separate file `userguide.tex` and include that file here. That file can also be included into a driver (like the senior design template) which has the client specified formatting. Again, this is a single source approach.

8.2 Installation Guide

8.3 Programmer Manual

9

Research Results

This chapter describes the results and conclusions of your research. This would be the final report for a research project.

9.1 Result 1

9.2 Result 2

9.3 Conclusions

9.4 Further work

SDSMT SENIOR DESIGN
SOFTWARE DEVELOPMENT AGREEMENT

This Software Development Agreement (the "Agreement") is made between the SDSMT Computer Science Senior Design Team Augmented Education ("Student Group"), consisting of team members Aaron Alphonsus, Cheldon Coughlen, Daniel Hodgin, Kenneth Petry, Savoy Schuler, and Brady Shimp ("Student Names"), and Sponsor InTouch L.L.C. ("Company Name") with address: 3902 Wonderland Dr. Rapid City, SD 57702.

1 RECITALS

1. Sponsor desires Senior Design Team to develop software for licensing to Sponsor's client(s).
2. Senior Design Teams willing to develop such Software.

NOW, THEREFORE, in consideration of the mutual covenants and promises herein contained, the Team and Sponsor agree as follows:

2 EFFECTIVE DATE

This Agreement shall be effective as of December 3, 2017 (the "Effective Date").

3 DEFINITIONS

1. "Software" shall mean the computer programs in source code and machine-readable object code form and any subsequent error corrections or updates supplied to Sponsor by Senior Design Team pursuant to this Agreement.
2. "Acceptance Criteria" means the written technical and operational performance and functional criteria and documentation standards set out in Attachment A.
3. "Acceptance Date" means the date for each Milestone when all Deliverables included in that Milestone have been accepted by Sponsor in accordance with the Acceptance Criteria and this Agreement.
4. "Deliverable" means a deliverable specified in Attachment A.
5. "Delivery Date" shall mean, with respect to a particular Milestone, the date on which University has delivered to Sponsor all of the Deliverables for that Milestone in accordance with this Agreement and Attachment A.
6. "Documentation" means the documents, manuals and written materials (including end-user manuals) referenced, indicated or described in Attachment A or otherwise developed pursuant to this Agreement.
7. "Milestone" means the completion and delivery of all the Deliverables or other events which are included or described in Attachment A scheduled for delivery and/or completion on a given target date; a Milestone will not be considered completed until the Acceptance Date has occurred with respect to all of the Deliverables for that Milestone.

4 DEVELOPMENT OF SOFTWARE

1. Senior Design Team will use its best efforts to develop the Software described in Attachment A. The Software development will be under the direction of or his/her successors as mutually agreed to by the parties ("Team Lead") and will be conducted by the Team Lead. The Team will deliver the Software to the satisfaction of the course instructor that reasonable effort has been made to address the needs of the client. The Team understands that failure to deliver the Software is grounds for failing the course.
2. Sponsor understands that the Senior Design course's mission is education and advancement of knowledge, and, consequently, the development of Software must further that mission. The Senior Design Course does not guarantee specific results or any results, and the Software will be developed only on a best efforts basis.
3. The Senior Design instructor will act as mediator between Sponsor and Team; and resolve any conflicts that may arise.

5 COMPENSATION

Compensation may be agreed upon in a separate document signed individually by the represented team member and the Sponsor.

6 CONSULTATION AND REPORTS

1. Sponsor's designated representative for consultation and communications with the Team Lead shall be Jared Johnson or such other person as Sponsor may from time to time designate to the Team Lead ("Designated Representative").
2. During the Term of the Agreement, Sponsor's representatives may consult informally with course instructor regarding the project, both personally and by telephone. Access to work carried on in University facilities, if any, in the course of this Agreement shall be entirely under the control of University personnel but shall be made available on a reasonable basis.
3. The Team Lead will submit written progress reports. At the conclusion of this Agreement, the Team Lead shall submit a comprehensive final report in the form of the formal course documentation at the conclusion of the Senior Design II course.

7 CONFIDENTIAL INFORMATION

1. The parties may wish, from time to time, in connection with work contemplated under this Agreement, to disclose confidential information to each other ("Confidential Information"). Each party will use reasonable efforts to prevent the disclosure of any of the other party's Confidential Information to third parties for

   a period of three (3) years after the termination of this Agreement, provided that the recipient party's obligation shall not apply to information that:

   (a) is not disclosed in writing or reduced to writing and so marked with an appropriate confidentiality legend within thirty (30) days of disclosure;

   (b) is already in the recipient party's possession at the time of disclosure thereof;

   (c) is or later becomes part of the public domain through no fault of the recipient party;

(d) is received from a third party having no obligations of confidentiality to the disclosing party; (e) is independently developed by the recipient party; or (f) is required by law or regulation to be disclosed.

2. In the event that information is required to be disclosed pursuant to subsection (6), the party required to make disclosure shall notify the other to allow that party to assert whatever exclusions or exemptions may be available to it under such law or regulation.

8 INTELLECTUAL PROPERTY RIGHTS

All intellectual property and deliverables are and pertaining to this agreement are and shall become property of the Sponsor.

9 WARRANTIES

The Senior Design Team represents and warrants to Sponsor that:

1. the Software is the original work of the Senior Design Team in each and all aspects;
2. the Software and its use do not infringe any copyright or trade secret rights of any third party.

No agreements will be made beyond items (1) and (2).

10 INDEMNITY

1. Sponsor is responsible for claims and damages, losses or expenses held against the Sponsor.
2. Sponsor shall indemnify and hold harmless the Senior Design Team, its affiliated companies and the officers, agents, directors and employees of the same from any and all claims and damages, losses or expenses, including attorney's fees, caused by any negligent act of Sponsor or any of Sponsor's agents, employees, subcontractors, or suppliers.
3. NEITHER PARTY TO THIS AGREEMENT NOR THEIR AFFILIATED COMPANIES, NOR THE OFFICERS, AGENTS, STUDENTS AND EMPLOYEES OF ANY OF THE FOREGOING, SHALL BE LIABLE TO ANY OTHER PARTY HERETO IN ANY ACTION OR CLAIM FOR CONSEQUENTIAL OR SPECIAL DAMAGES, LOSS OF PROFITS, LOSS OF OPPORTUNITY, LOSS OF PRODUCT OR LOSS OF USE, WHETHER THE ACTION IN WHICH RECOVERY OF DAMAGES IS SOUGHT IS BASED ON CONTRACT TORT (INCLUDING SOLE, CONCURRENT OR OTHER NEGLIGENCE AND STRICT LIABILITY), STATUTE OR OTHERWISE. TO THE EXTENT PERMITTED BY LAW, ANY STATUTORY REMEDIES WHICH ARE INCONSISTENT WITH THE PROVISIONS OF THESE TERMS ARE WAIVED.

11 INDEPENDENT CONTRACTOR

For the purposes of this Agreement and all services to be provided hereunder, the parties shall be, and shall be deemed to be, independent contractors and not agents or employees of the other party. Neither party shall have authority to make any statements, representations or commitments of any kind, or to take any action which shall be binding on the other party, except as may be expressly provided for herein or authorized in writing.

12 TERM AND TERMINATION

1. This Agreement shall commence on the Effective Date and extend until the end of classes of the second semester of Senior Design (CSC 467), unless sooner terminated in accordance with the provisions of this Section ("Term").
2. This Agreement may be terminated by the written agreement of both parties.
3. In the event that either party shall be in default of its materials obligations under this Agreement and shall fail to remedy such default within thirty (30) days after receipt of written notice thereof, this Agreement shall terminate upon expiration of the thirty (30) day period.
4. Any provisions of this Agreement which by their nature extend beyond termination shall survive such termination.

13 ATTACHMENTS

Attachments A and B are incorporated and made a part of this Agreement for all purposes.

14 GENERAL

1. This Agreement constitutes the entire and only agreement between the parties relating to the Senior Design Course, and all prior negotiations, representations, agreements and understandings are superseded hereby. No agreements altering or supplementing the terms hereof may be made except by means of a written document signed by the duly authorized representatives of the parties.
2. This Agreement shall be governed by, construed, and enforced in accordance with the internal laws of the State of South Dakota.

15 SIGNATURES

Aaron Alphonsus	Date
Cheldon Coughlen	Date
Daniel Hodgin	Date

Kenneth Petry	Date
Savoy Schuler	Date
Brady Shimp	Date

A

Product Description

Write a description of the product to be developed. Use sectioning commands as neccessary.

NOTE: *This is part of the contract.*

B

Class Index

1 Class List

Here are the classes, structs, unions and interfaces with brief descriptions:

Poly C-1

C

Class Documentation

1 Poly Class Reference

Public Member Functions

- Poly ()
- ∼Poly ()
- int myfunction (int)

1.1 Constructor & Destructor Documentation

1.1.a Poly::Poly ( )

My constructor

1.1.b Poly::∼Poly ( )

My destructor

1.2 Member Function Documentation

1.2.a int Poly::myfunction (int *a*)

my own example function fancy new function

new variable

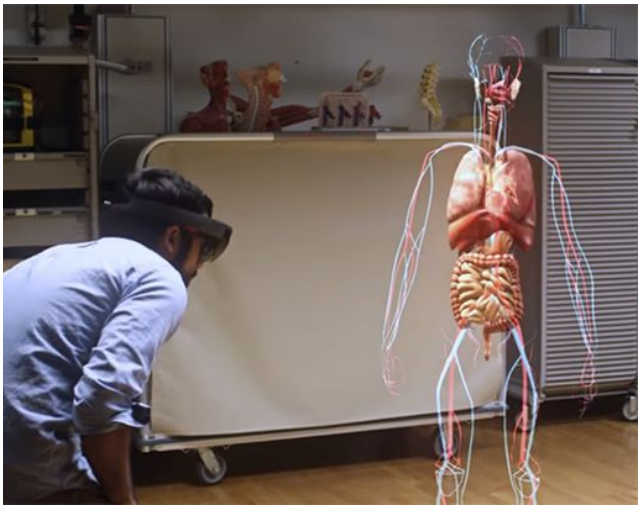
The documentation for this class was generated from the following file:

- hello.cpp

D

Business Plan

InTouch L.L.C. Business Plan



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Executive Summary

Augmented reality, commonly called AR, is a technological advancement that allows individuals to overlay virtual animations into the real world using an optical viewing aid to augment the user's vision of their surroundings. Though hardware and entertainment software is blossoming, this cutting edge technology has yet to penetrate the eager and profitable industry of higher education. Augmented Education by InTouch L.L.C. provides a platform for harnessing this new technology to enhance the traditional education experience with an effective and engaging new medium. By orienting itself at instructors and students, Augmented Education is a cloud hosted service that opens up multiple channels of revenue and sets in place an infrastructure and a connection through which numerous value-added services can be provided at the user's pleasure.

To demonstrate the Augmented Education service, think back to the last time you were in class learning about a 3D design, Calculus graph, or physics problem. No instructor had a choice other than to present 3D content on a 2D chalkboard or projector. Imagine next year you sit in a South Dakota School of Mines and Technology classroom where the instructor asks you to use your phone or a headset to view their presentation. What was once a QR code in the presentation is now a 3D shape appearing in the environment with you. Using your hands, you may bring it closer, manipulate it, turn it around, and perhaps flip through a sequence of animations using your fingertips.

Architecture and civil engineering students often design structures and buildings with 3D design software. With this platform, a student or instructor need only to upload their file to the Augmented Education website before they are able to use an augmented reality headset to scale their design to real world size and step through it, viewing it from the inside or placing it next to a campus building for scale. As collaboration grows, these students may soon be able to use this platform to virtually inspect the architecture of famous buildings from around the world.

The first area Augmented Education is going to hit is the South Dakota School of Mines and Technology which has already purchased a one-year license for Augmented Education. This also is where Augmented Education is currently being tested for results in student engagement, retention, and conceptual clarity. Augmented Education intends to spread to textbook companies and other STEM programs around the Midwest by partnering in sales with the 3D modeling software companies that are

most widely used in the STEM community. STEM programs are an excellent starting point to find early adopters like SD Mines due to their intrinsic need to stay at the forefront of technology and innovation.

Augmented Education will offer different tiers of licensing with increasing cloud storage and value-add services for each, with a basic license starting around $7,000 for one terabyte private storage and five terabytes downstream bandwidth, DDoS protection, and load balancing.

Growth Opportunity for Augmented Education is large with interest already being expressed from industry clients looking to leverage the platform for 3D advertising, architecture design, and pre-construction modeling. InTouch L.L.C. is looking to raise $175,400 in capital to fund this project. The start-up capital will be used for platform development, salaries, and marketing.

Business Description

InTouch L.L.C. pursues the mission of developing augmented reality and virtual reality (known together as “mixed reality”) solutions for education and enterprise. Hardware and entertainment software for this technology have matured over the past decade while innovators have, until now, overlooked the opportunity to leverage this same technology for applications such as classroom education, 3D advertising, architecture design, and pre-construction modeling, and more.

As a business comprised of South Dakota School of Mines and Technology students, InTouch L.L.C. was able to identify fundamental flaws in core aspects of the STEM education as it is currently provided. Namely in aspects of bringing pencil and paper concepts forth to the real world. The various STEM departments utilize advanced 3D modeling software tools to achieve this goal but the concept is still lost as the 3D visualizations are presented on a 2D computer screen. The purpose of our service is to enhance the value of these modeling softwares and provide a higher quality education by giving students the ability to view these visualizations in a true 3D environment, allowing students to fully perceive depth and scale through object manipulation features, such as movement and animation.

Our goal is to create a software platform to take diagrams created with existing modeling softwares that are widely used in the STEM fields and make true 3D visualizations possible through Augmented Reality viewing devices such as the Microsoft Hololens, Meta 2, and Mira Prism. We intend to license this product to colleges and universities with STEM courses to aid in education, starting with South Dakota School of Mines and Technology as a beta testing user. Having this esteemed STEM university utilize this service and provide feedback early in the lifecycle will enable us to adapt and make necessary changes for the success of our service to other universities.

Market Summary and Opportunity

The primary target market for our educational augmented reality application is post-secondary schools in the United States. The U.S. Census Bureau has released that in the 2015-2016 academic year there were 4,147 of these institutions operating.

Market Size

In the 2014-15 academic year, these institutions saw a total revenue of $567 billion. In the same year, there is a recorded $536 billion in expenses. In public schools, 20% of these expenditures went towards student services and academic support. In private nonprofit schools, 30% was spent on student services and support. In private for-profit schools, 63% of expenses were in this same sector. This is the area where we expect to see our revenue.

The remaining net profit for the post-secondary schools sits at $31 billion. Knowing the weighted percentage of school spending on student services and support sits at approximately 35%, we can assume to see the cap of available funds to be re-invested in technologies like ours to be at around $10.85 billion.

South Dakota's Share

In South Dakota there are currently 22 active post-secondary institutions. Using a broad estimate approach, South Dakota then has a 0.5 percent share of the U.S. cap of $10.85 billion, leaving these schools with about $57 million to be invested into student support and educational assistance.

Product Value

This platform serves to aid in the learning experience and helps students capture understanding in their respective fields with visual aids that can be moved and manipulated in 3D space, where financial or physical constraints may otherwise limit learning and engagement. Examples include architectural models, mechanical models, anatomical models, and even mathematical plots. The increase in student success with visual aids results in more successful alumni in industry. Students better prepared for employment will require less monetary investment in regard to training and may be preferred by choice employers. For the school this means more potential donations from alumni, as well as statistics for the marketing of the school leading to more future students.

Competition

Augmented reality for education is saturated with small applications for primary and secondary education. Beyond that, the only identifiable competitor to this platform is Augment. Augment advertises a number of similar features and may be competition moving forward. Four marketable features set Augmented Education ahead of this competition:

- Augment does not emphasize post-secondary education but instead focuses on marketing with special limited educational subscriptions available. Augmented Education is the only platform to cater exclusively to the academic market.
- Augmented Education focuses on wearable technology. The current market focus is on the easier-to-achieve mobile phone application that limits users to interacting with objects on a phone or tablet screen rather than directly with the projected object in 3D space.

- Augmented education is designed to be an API ecosystem that connects data and various applications to aid in cross-platform, cross-program work for mass collaboration.
- This is the first AR design platform to target an online social space. This allows the platform to serve as a collaborative tool within educational institutions and between them, promoting and supporting the learning experience while still allowing for models to be kept private as needed.

Business Team

Ownership

Savoy Schuler is an intellectual founder.

Brady Shimp is an intellectual founder.

Dr. Jeff McGough is an intellectual founder.

Daniel Hodgin was offered membership interest in return for labor and his experience in building and selling custom software for enterprise.

Jared Johnson was offered membership interest in return for labor and his expertise in software development tools, programming languages, software, and hardware.

Management

Chief Executive Officer – Savoy Schuler

Mr. Schuler is graduating with a B.S. in Computer Science and Minor in Mathematics in May of 2018. Mr. Schuler is equipped with one year of experience in cybersecurity from Littelfuse Incorporated, one year of experience in operating system programming from Raven Industries, and two year's of staff management experience from Liv Hospitality. Mr. Schuler's former leadership experience and effective communication skills with people of varying degrees of authority and technical background led him to be the key choice of the Chief Executive Officer position.

In the Chief Executive Officer role, Mr. Schuler is responsible for unifying the company vision, directing cooperative efforts amongst the other chief officers, approving internal projects, selecting external contracts, managing finances, ensuring legal security, and acquiring assets.

Chief Operations Officer – Brady Shimp

Mr. Shimp is graduating with a B.S. in Computer Science in May of 2018 and has two years of work experience at Innovative Systems. During his time at Innovative Systems, Mr. Shimp has gained experience in programming front end UI development, mobile and desktop applications, backend server

development in both Windows and Unix/Linux systems, project leadership, and timeline development and management. Coinciding with his personality, Mr. Shimp's organizational lifestyle and systematic approach to solving problems makes him an an excellent match for the Chief Operations Officer role.

In the Chief Operations Officer role, Mr. Shimp is responsible for systems administration, maintaining product vision, developing timelines, managing development, delegating tasks, and keeping project development on track.

Chief Business Officer – Daniel Hodgin

Mr. Hodgin is graduating with a B.S. in Computer Science in May of 2018 and has formerly worked at Omnitech Incorporated, a custom software solutions provider in Sioux Falls, SD. In his role at Omnitech Incorporated, Mr. Hodgin was involved in the lifecycle of custom software from customer acquisition and requirements gathering to delivery and maintenance. Mr. Hodgin's intrinsic interest in business and customer insight in the field of custom software highlighted his candidacy for the Chief Business Officer role.

In the Chief Business Officer role, Mr. Hodgin is responsible for customer acquisition, leading client meetings, gathering customer requirements, user experience testing, and leading communication with customers. In customer acquisition efforts, Mr. Hodgin is also responsible for public relations, advertising, marketing, and company brand image.

Chief Technology Officer – Jared Johnson

Mr. Johnson is graduating with a B.S. in Computer Science in May of 2018 and has two years of work experience at CHR Solutions. From professional experience and personal endeavors, Mr. Johnson is equipped with a diverse knowledge of programming tools, development software, and computer hardware. Mr. Johnson possesses an uncommon knowledge of backend and low level development practices that make him a valuable resource for selecting the right tools for architecting software systems.

In the Chief Technology Officer role, Mr. Johnson is responsible for understanding the technical necessities of each project, selecting the most advantageous development tools, and architecting software solutions.

Advisors

Business Advisor – Dr. Jeff McGough

Dr. McGough holds a Ph.D. in Mathematics from the University of Utah. Dr. McGough taught mathematics at the University of Nevada Reno for four years before moving to the South Dakota School of Mines and Technology to instruct courses in computer science and mathematics for nineteen years. InTouch L.L.C. is Dr. McGough's third entrepreneurial venture and for which he acts as an advisor on matters of business.

Business Plan Advisor – Todd Gagne

Mr. Gagne has over 17 years of experience in the software and services industry covering a broad range of roles including consulting, product management, and program management as well as presidency of two start-up companies. At Concur Technologies, Mr. Gagne was responsible for managing development teams that delivered a number of large-scale domestic and international releases targeted at the Fortune 1000 market. Prior to Concur, Mr. Gagne worked at Microsoft and was responsible for the navigational system of the AutoPC, a first-generation voice-activated car stereo with integrated cell phone and navigational functionality. Mr. Gagne is a result-oriented executive with a proven track record of building concepts in companies. Mr. Gagne is a graduate of South Dakota School of Mines and Technology. At InTouch L.L.C., Mr. Gagne advises on matters of product vision, product growth strategy, business growth strategy, and product vision refinement.

Business Growth Strategy Advisor – Tamera Nelson

Mrs. Nelson's background includes extensive experience in global manufacturing and construction, including over 20 years at Caterpillar, Inc. Mrs. Nelson has been selected by senior management to lead critical assignments across the U.S. and global locales. In these roles, Mrs. Nelson directed manufacturing, supply chain, and product design for a large mining facility in Australia, managing 700+ personnel in a 24/5 environment. Mrs. Nelson concurrently led a multimillion dollar building project to build a large OEM greenfield facility in Thailand, the first of its kind in the country. Mrs. Nelson is known for her ability to ensure consistently high outcomes by building strong infrastructures and engaged,collaborative teams, and creating performance-driven cultures. With InTouch L.L.C., Mrs. Nelson advises on matters of company and product scalability and growth in addition to developing connections with quality business service providers.

Compensation and Staff Plan

At the present, management (Mr. Schuler, Mr. Shimp, Mr. Hodgin, Mr. Johnson) is pursuing custom software contract work to financially support the development and success of the Augmented Education service. During this period, compensation of management has been limited to 15% of contract revenue with 60% of contract revenue being directed toward project budgeting for Augmented Education.

During the development phase, the budget will emphasis supporting labor for development and making proper withholdings to support Augment Education's hardware needs for the first year.

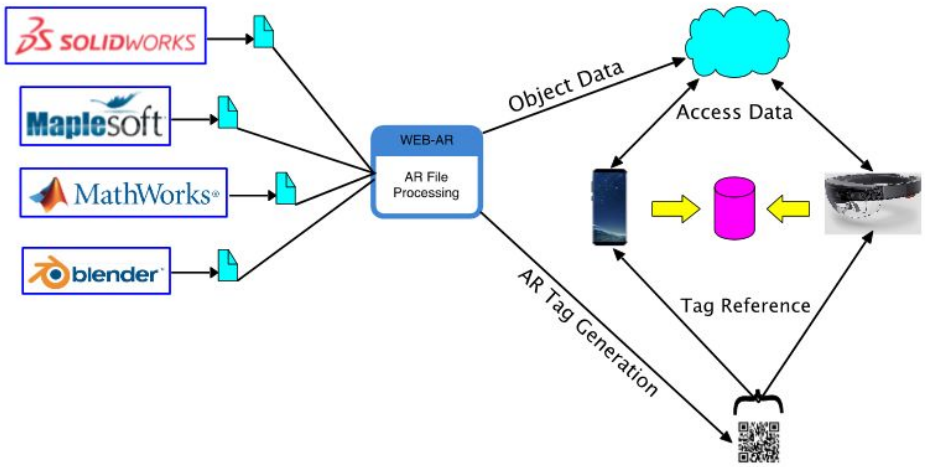
Before product delivery, the budget will be permanently redirected toward acquiring sales and advertising staff and supporting efforts to successfully market the product while maintaining allowances for product maintenance and feature development in response to customer feedback.

Should financial success allow for fixed salaries, two software engineers will be employed from the management staff at $40,000/year and three sales and advertising staff will be employed at $32,000/year.

Product

Description

Augmented Education is platform allowing content made by educators with common 3D design programs to be cloud host, converted, and made on-demand available to augmented reality viewing devices and mobile phones through QR codes that may be embedded in textbooks, presentations, and other media to enhance the traditional classroom experience. Once a 3D design has been accessed via QR code and loaded, the student may take the visualization anywhere and manipulate it as needed.



Product Vision

Long term product evolution is visualized in the following phases. The product will be delivered to end users upon completion of the first phase. The licensing model will allow the following two phases to commence with user feedback and active revenue streams.

- Phase One - current development - QR code and multi-platform visualization.
- Phase Two - social platform to share models and collaboration both within universities and across other educational institutions.
- Phase Three - full blown platform with API ecosystem that connects all sorts of data from various applications to visualize and collaborate.

Phase One Features

- Users may use the website interface to upload files from 3D design programs commonly used in STEM education.
- Upon upload files will be converted in a ubiquitous file format available for AR rendering.
- The user will be returned a QR code that may be embedded in textbooks, homeworks handouts, PowerPoint presentations, emails, etc.
- When an AR headset or mobile phone is used to view the QR code, the device will locate and render the associated file in augmented reality for the user.
- Certain devices will allow the user motion control abilities to interact with the renderings so that they may be moved, scaled, rotated, animated, or "flipped through" in steps.
- Cloud hosting will make the user's files available anywhere at any time.
- The web interface will allow for the management of files (add, delete, update, download).
- Web interface privacy settings will allow designs to be private, public, or accessible only by a "group" such as an institution.

Intellectual Property

Patent application for elements of process pending.

Value

A/B testing targeting student engagement, retention, and conceptual clarity will be conducted in classrooms at the South Dakota School of Mines and Technology. Tests will be performed for several semesters wherein one section of a course taught by a given professor will be able to utilize our technology in the classroom as a learning aid and the other will not.

The time required for an engineer to be trained in the transition between student and working professional averages in the range of 1-2 years. A result of the goal of enhancing the traditional educational experience with this service is to eliminate a large portion of the training required for students to make the transition to professionals in their fields. The test results will be able to support the claim that this service will reduce the amount of time is required to successfully make this transition. With the average entry level engineering salary at about $70,500, meaning up to $141,000 or more in training expenses per entry level hire, Augmented Education aims to cut this need in half by providing students with a more immersive approach to learning and mastering concepts of design and structure. This is envisioned through noting that, should the new in-classroom experience create more effective learning, more topics and depth will be able to be taught per course.

Value Testimonials

"Education is an industry based on entertainment. You *can* learn everything about Calculus from a 1960's textbook. The information is the same today as it was then, but new textbooks are sold because

they are printed in color and with better pictures. Students use Youtube tutorials to learn math because it is effective. The reason people pay for classes with instructors is because we balance presenting information with entertaining the student's interest in it. Augment reality in education is that next step in creating a more engaging and entertaining learning environment." - Dr. Jeff McGough, Computer Science and Mathematics Professor at SDSMT and founder of InTouch L.L.C.

"As an industrial engineering instructor, I run labs where students build bridges and motors using Lego bricks. I do it because it's interactive and helps communicate some of the early concepts. If I could have system where students could instead see the components of these structures in an animated 3D environment that they could interact with, I would implement it immediately." - Dr. Adam Piper, Industrial Engineer Professor at SDSMT

Marketing and Sales

Initial Market Penetration

The first customer of this service is South Dakota School of Mines and Technology, which will receive a beta version of the service in April 2018. The South Dakota School of Mines and Technology's early use and testing of the service will allow us to receive customer testimonial and feedback to improve our service before the initial release. Sales will be finalized through direct online purchases, similar to setting up an account for a paid service.

As InTouch L.L.C. is a small operation in the Black Hills, the initial challenge will be discovery. Discovery is a challenge that brings with it a second challenge of finding a successful sales strategy. To overcome this, initial sales have been prioritized and strategized with the following plan:

1. **Partner with 3D modeling software vendors**

Vendors such as Maplesoft, Solidworks, and Blender are widely used in the STEM community and already have sales staff and existing customer relationships with nearly the exact same target audience as Augmented Education. Our initial sales objective is to partner with at least one of these vendors and negotiate a deal with their sales team to offer our service as a bundle with their existing products and services. These companies will keep a percentage of each sale as a form of commision in return for selling our service which provides added value to their product or service.

2. **'Cold call' sales strategy**

In the event that we are unsuccessful in partnering with other service providers for initial sales, our next most favorable strategy will be a traditional 'cold call' system. We will market the testimonial from the South Dakota School of Mines and Technology to other area schools with STEM programs to build a reputation. This strategy is initially less favorable than creating partnerships because it requires redirecting time away from development and management tasks and coerces it to learning the navigation process of selling to universities.

3. **Hiring a sales and marketing team**

Pending the failure of both previous strategies, we would need to hire a team for sales and marketing. This is the least favorable option without any form of cash injection as it require significant pay cuts for the owners, management, and developers.

Placing Value in Customers

We know that as a business, without customers, we can't survive. One of the things we believe is missing from most business models today is the personal interaction between the business and the client. For that reason, our customer relationships and their satisfaction with our services is first and foremost. Our top priority is to maintain a good standing, Mid-west style relationship with our customers. Therefore, we believe that all meetings, communication, and interactions are a top priority and we believe that communication is best handled with the highest degree of personal interaction possible. We intend to handle all client interactions in the following order of preference:

1. **Face-to-face:** We want our customers to feel that we value them. That experience is hard achieved through back and forth instant messaging communication of any variety.
2. **Video conference:** Physical meetings aren't always an option due to scheduling constraints and distance. If we aren't able to physically meet our clients, we would like to at least communicate through a video conference to allow them to put a face to the voice they are talking to.
3. **Phone call:** Used if video hardware is not available to the client.
4. **Email:** Last resort of communication. Emails are the most convenient for all parties but they are the least involved and the least personal form of communication.

By maintaining quality and personal communication, accepting feedback, genuinely expressing care and interest in developing needs, and striving for long-standing good customer relationships, we believe that we will be able to attain a high customer satisfaction rate as well as improve our services to better suit the needs of those using them.

Strategy for Growth

Once legitimized and profitable, our top priority is to have a sales and marketing staff that is able to navigate sales to IT departments, university leaders, and etc. A sales staff may enable us to earn the share of sales previously forfeit to partner companies. The increased profits made possible by a designated sales team will then enable us to grow our staff in South Dakota and continue to expand our service a wider variety of consumers and industries.

Sources & Uses of Funds Statement

Sources of Funds: (where you will get the money to fund your project)

Equity (money or assets owners/investors will provide)

Cash Injection	$175,400		
Total Equity Contribution		$175,400	100%

Debt (borrowed money)

Total Debt Contribution		$0	0%
		Total Sources of Funds	$175,400

Uses of Funds: (what you'll use the above funds for)

Fixed Assets:

Organizational Expense	$200		
	Total Long Term Assets	$200	
	Working Capital (Cash)	$175,000	
	Supplies	$200	
		Total Uses of Funds	$175,400

Critical Assumptions

InTouch LLC
11/9/2017

Projections were calculated based on revenue and expense figures provided by the client

Loans were calculated based on project estimates provided by the client and a subject to revision after client consults with lender.

One loan of **$0** amortized at **0.00%** for **0** years Lender

Equity **$175,400**

Client Name:		**InTouch LLC**					**The South Dakota Small Business Development Center has prepared these**								
FINANCIAL STATEMENT:		**Pro Forma Income Statement**					**financial projections from information communicated by the Client.**								
Date Prepared		11/9/2017					**We are not licensed by the state of South Dakota to practice Public Accounting**								
							and can therefore give no opinion or assurance on the statements.								
	Year 1	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18	Jan-19	Feb-19	Mar-19	Apr-19	TOTALS	
REVENUE		$0	$0	$0	$0	$0	$10,000	$10,000	$10,000	$10,000	$20,000	$30,000	$30,000	$120,000	100.0%
COST OF GOODS SOLD		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0.0%
GROSS PROFIT		$0	$0	$0	$0	$0	$10,000	$10,000	$10,000	$10,000	$20,000	$30,000	$30,000	$120,000	100.0%
EXPENSES:															
Owner's Salary		$8,750	$8,750	$8,750	$8,750	$8,750	$8,750	$8,750	$8,750	$8,750	$8,750	$8,750	$8,750	$105,000	87.5%
Owner Payroll Taxes	15.30%	$1,339	$1,339	$1,339	$1,339	$1,339	$1,339	$1,339	$1,339	$1,339	$1,339	$1,339	$1,339	$16,065	13.4%
Fixed Employee Wages		$2,500	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500	$30,000	25.0%
Fixed Payroll Taxes	10.35%	$259	$259	$259	$259	$259	$259	$259	$259	$259	$259	$259	$259	$3,105	2.6%
Outside Services		$236	$236	$236	$236	$236	$236	$236	$236	$236	$236	$236	$236	$2,832	2.4%
Supplies		$50	$50	$50	$50	$50	$50	$50	$50	$50	$50	$50	$50	$600	0.5%
Ad/Promotion		$500	$500	$500	$500	$500	$500	$500	$500	$500	$500	$500	$500	$6,000	5.0%
Car/Travel		$100	$100	$100	$100	$100	$100	$100	$100	$100	$100	$100	$100	$1,200	1.0%
Acct & Legal		$100	$100	$100	$100	$100	$100	$100	$100	$100	$100	$100	$100	$1,200	1.0%
Telephone		$50	$50	$50	$50	$50	$50	$50	$50	$50	$50	$50	$50	$600	0.5%
Insurance		$50	$50	$50	$50	$50	$50	$50	$50	$50	$50	$50	$50	$600	0.5%
Miscellaneous		$50	$50	$50	$50	$50	$50	$50	$50	$50	$50	$50	$50	$600	0.5%
Contract Labor		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0.0%
Depreciation		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0.0%
Amortization		$1	$1	$1	$1	$1	$1	$1	$1	$1	$1	$1	$1	$13	0.0%
TOTAL EXPENSES		$13,985	$13,985	$13,985	$13,985	$13,985	$13,985	$13,985	$13,985	$13,985	$13,985	$13,985	$13,985	$167,815	139.8%
NET PROFIT BEFORE TAX		($13,985)	($13,985)	($13,985)	($13,985)	($13,985)	($3,985)	($3,985)	($3,985)	($3,985)	$6,015	$16,015	$16,015	($47,815)	-39.8%
INCOME TAX	0.0%	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0.0%
NET INCOME		($13,985)	($13,985)	($13,985)	($13,985)	($13,985)	($3,985)	($3,985)	($3,985)	($3,985)	$6,015	$16,015	$16,015	($47,815)	-39.8%

PROFIT CENTERS														
Revenue	$0	$0	$0	$0	$0	$10,000	$10,000	$10,000	$10,000	$20,000	$30,000	$30,000	$120,000	100%
TOTAL	$0	$0	$0	$0	$0	$10,000	$10,000	$10,000	$10,000	$20,000	$30,000	$30,000	$120,000	100%

Client Name:	**InTouch LLC**	**The South Dakota Small Business Development Center has prepared these**	
FINANCIAL STATEMENT:	**Pro Forma Cash Flow**	**financial projections from information communicated by the Client.**	
Date Prepared	11/9/2017	**We are not licensed by the state of South Dakota to practice Public Accounting**	
		and can therefore give no opinion or assurance on the statements.	

BUDGET MONTH **Year 1**	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18	Jan-19	Feb-19	Mar-19	Apr-19	TOTAL
CASH INFLOW													
Cash Sales	$0	$0	$0	$0	$0	$10,000	$10,000	$10,000	$10,000	$20,000	$30,000	$30,000	$120,000
Collection from Credit	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
TOTAL CASH RECEIVED	$0	$0	$0	$0	$0	$10,000	$10,000	$10,000	$10,000	$20,000	$30,000	$30,000	$120,000
CASH PAID OUT													
Cost of Goods Sold	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Owner's Salary	$8,750	$8,750	$8,750	$8,750	$8,750	$8,750	$8,750	$8,750	$8,750	$8,750	$8,750	$8,750	$105,000
Owner Payroll Taxes	$1,339	$1,339	$1,339	$1,339	$1,339	$1,339	$1,339	$1,339	$1,339	$1,339	$1,339	$1,339	$16,065
Fixed Employee Wages	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500	$30,000
Fixed Payroll Taxes	$259	$259	$259	$259	$259	$259	$259	$259	$259	$259	$259	$259	$3,105
Outside Services	$236	$236	$236	$236	$236	$236	$236	$236	$236	$236	$236	$236	$2,832
Supplies	$50	$50	$50	$50	$50	$50	$50	$50	$50	$50	$50	$50	$600
Ad/Promotion	$500	$500	$500	$500	$500	$500	$500	$500	$500	$500	$500	$500	$6,000
Car/Travel	$100	$100	$100	$100	$100	$100	$100	$100	$100	$100	$100	$100	$1,200
Acct & Legal	$100	$100	$100	$100	$100	$100	$100	$100	$100	$100	$100	$100	$1,200
Telephone	$50	$50	$50	$50	$50	$50	$50	$50	$50	$50	$50	$50	$600
Insurance	$50	$50	$50	$50	$50	$50	$50	$50	$50	$50	$50	$50	$600
Miscellaneous	$50	$50	$50	$50	$50	$50	$50	$50	$50	$50	$50	$50	$600
Contract Labor	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Depreciation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Amortization	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Subtotal	$13,984	$13,984	$13,984	$13,984	$13,984	$13,984	$13,984	$13,984	$13,984	$13,984	$13,984	$13,984	$167,802
Income Taxes	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
TOTAL CASH PAID	$13,984	$13,984	$13,984	$13,984	$13,984	$13,984	$13,984	$13,984	$13,984	$13,984	$13,984	$13,984	$167,802
CHANGE IN CASH	($13,984)	($13,984)	($13,984)	($13,984)	($13,984)	($3,984)	($3,984)	($3,984)	($3,984)	$6,017	$16,017	$16,017	($47,802)
Beginning Balance	$175,000	$161,017	$147,033	$133,050	$119,066	$105,083	$101,099	$97,116	$93,132	$89,149	$95,165	$111,182	
Ending Balance	$161,017	$147,033	$133,050	$119,066	$105,083	$101,099	$97,116	$93,132	$89,149	$95,165	$111,182	$127,198	

Client Name:	**InTouch LLC**	**The South Dakota Small Business Development Center has prepared these**
FINANCIAL STATEMENT:	**Pro Forma Balance Sheets**	**financial projections from information communicated by the Client.**
Date Prepared	11/9/2017	**We are not licensed by the state of South Dakota to practice Public Accounting**
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Year 1	Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18	Jan-19	Feb-19	Mar-19	Apr-19
Cash	$175,000	$161,017	$147,033	$133,050	$119,066	$105,083	$101,099	$97,116	$93,132	$89,149	$95,165	$111,182	$127,198
Other	$200	$200	$200	$200	$200	$200	$200	$200	$200	$200	$200	$200	$200
Current Assets	$175,200	$161,217	$147,233	$133,250	$119,266	$105,283	$101,299	$97,316	$93,332	$89,349	$95,365	$111,382	$127,398
Net Fixed Assets	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Net Intangibles	$200	$199	$198	$197	$196	$194	$193	$192	$191	$190	$189	$188	$187
TOTAL ASSETS	$175,400	$161,415	$147,431	$133,446	$119,462	$105,477	$101,492	$97,508	$93,523	$89,539	$95,554	$111,569	$127,585
Taxes Payable	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Current Liabilities	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total Liabilities	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Common Stock	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Add'l Equity Injections	$175,400	$175,400	$175,400	$175,400	$175,400	$175,400	$175,400	$175,400	$175,400	$175,400	$175,400	$175,400	$175,400
Retained Earnings	$0	($13,985)	($27,969)	($41,954)	($55,938)	($69,923)	($73,908)	($77,892)	($81,877)	($85,862)	($79,846)	($63,831)	($47,815)
Total Owner's Equity	$175,400	$161,415	$147,431	$133,446	$119,462	$105,477	$101,492	$97,508	$93,523	$89,539	$95,554	$111,569	$127,585
TOT LIA & NET WORTH	$175,400	$161,415	$147,431	$133,446	$119,462	$105,477	$101,492	$97,508	$93,523	$89,539	$95,554	$111,569	$127,585
CHECK	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0

Client Name:	InTouch LLC	The South Dakota Small Business Development Center has prepared these
FINANCIAL STATEMENT:	Pro Forma Income Statement	financial projections from information communicated by the Client.
Date Prepared	11/9/2017	We are not licensed by the state of South Dakota to practice Public Accounting and can therefore give no opinion or assurance on the statements.

Year 2		May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	TOTALS	
REVENUE		$35,000	$40,000	$45,000	$50,000	$55,000	$60,000	$65,000	$70,000	$75,000	$75,000	$75,000	$75,000	$720,000	100.0%
COST OF GOODS SOLD		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0.0%
GROSS PROFIT		$35,000	$40,000	$45,000	$50,000	$55,000	$60,000	$65,000	$70,000	$75,000	$75,000	$75,000	$75,000	$720,000	100.0%
						5.0% Expense Growth									
EXPENSES:															
Owner's Salary		$9,188	$9,188	$9,188	$9,188	$9,188	$9,188	$9,188	$9,188	$9,188	$9,188	$9,188	$9,188	$110,250	15.3%
Owner Payroll Taxes	15.30%	$1,406	$1,406	$1,406	$1,406	$1,406	$1,406	$1,406	$1,406	$1,406	$1,406	$1,406	$1,406	$16,868	2.3%
Fixed Employee Wages		$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$36,000	5.0%
Fixed Payroll Taxes	10.35%	$311	$311	$311	$311	$311	$311	$311	$311	$311	$311	$311	$311	$3,726	0.5%
Outside Services		$248	$248	$248	$248	$248	$248	$248	$248	$248	$248	$248	$248	$2,974	0.4%
Supplies		$53	$53	$53	$53	$53	$53	$53	$53	$53	$53	$53	$53	$630	0.1%
Ad/Promotion		$525	$525	$525	$525	$525	$525	$525	$525	$525	$525	$525	$525	$6,300	0.9%
Car/Travel		$105	$105	$105	$105	$105	$105	$105	$105	$105	$105	$105	$105	$1,260	0.2%
Acct & Legal		$105	$105	$105	$105	$105	$105	$105	$105	$105	$105	$105	$105	$1,260	0.2%
Telephone		$53	$53	$53	$53	$53	$53	$53	$53	$53	$53	$53	$53	$630	0.1%
Insurance		$53	$53	$53	$53	$53	$53	$53	$53	$53	$53	$53	$53	$630	0.1%
Miscellaneous		$53	$53	$53	$53	$53	$53	$53	$53	$53	$53	$53	$53	$630	0.1%
Contract Labor		$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$36,000	5.0%
Depreciation		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0.0%
Amortization		$1	$1	$1	$1	$1	$1	$1	$1	$1	$1	$1	$1	$13	0.0%
TOTAL EXPENSES		$18,098	$18,098	$18,098	$18,098	$18,098	$18,098	$18,098	$18,098	$18,098	$18,098	$18,098	$18,098	$217,171	30.2%
NET PROFIT BEFORE TAX		$16,902	$21,902	$26,902	$31,902	$36,902	$41,902	$46,902	$51,902	$56,902	$56,902	$56,902	$56,902	$502,829	69.8%
INCOME TAX	0.0%	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0.0%
NET INCOME		$16,902	$21,902	$26,902	$31,902	$36,902	$41,902	$46,902	$51,902	$56,902	$56,902	$56,902	$56,902	$502,829	69.8%

PROFIT CENTERS														
Revenue	$35,000	$40,000	$45,000	$50,000	$55,000	$60,000	$65,000	$70,000	$75,000	$75,000	$75,000	$75,000	$720,000	100%
TOTAL	$35,000	$40,000	$45,000	$50,000	$55,000	$60,000	$65,000	$70,000	$75,000	$75,000	$75,000	$75,000	$720,000	100%

Client Name:	**InTouch LLC**	**The South Dakota Small Business Development Center has prepared these**	
FINANCIAL STATEMENT:	**Pro Forma Cash Flow**	**financial projections from information communicated by the Client.**	
Date Prepared	11/9/2017	**We are not licensed by the state of South Dakota to practice Public Accounting**	
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BUDGET MONTH **Year 2**	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	TOTAL
CASH INFLOW													
Cash Sales	$35,000	$40,000	$45,000	$50,000	$55,000	$60,000	$65,000	$70,000	$75,000	$75,000	$75,000	$75,000	$720,000
Collection from Credit	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
TOTAL CASH RECEIVED	$35,000	$40,000	$45,000	$50,000	$55,000	$60,000	$65,000	$70,000	$75,000	$75,000	$75,000	$75,000	$720,000
CASH PAID OUT													
Cost of Goods Sold	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Owner's Salary	$9,188	$9,188	$9,188	$9,188	$9,188	$9,188	$9,188	$9,188	$9,188	$9,188	$9,188	$9,188	$110,250
Owner Payroll Taxes	$1,406	$1,406	$1,406	$1,406	$1,406	$1,406	$1,406	$1,406	$1,406	$1,406	$1,406	$1,406	$16,868
Fixed Employee Wages	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$36,000
Fixed Payroll Taxes	$311	$311	$311	$311	$311	$311	$311	$311	$311	$311	$311	$311	$3,726
Outside Services	$248	$248	$248	$248	$248	$248	$248	$248	$248	$248	$248	$248	$2,974
Supplies	$53	$53	$53	$53	$53	$53	$53	$53	$53	$53	$53	$53	$630
Ad/Promotion	$525	$525	$525	$525	$525	$525	$525	$525	$525	$525	$525	$525	$6,300
Car/Travel	$105	$105	$105	$105	$105	$105	$105	$105	$105	$105	$105	$105	$1,260
Acct & Legal	$105	$105	$105	$105	$105	$105	$105	$105	$105	$105	$105	$105	$1,260
Telephone	$53	$53	$53	$53	$53	$53	$53	$53	$53	$53	$53	$53	$630
Insurance	$53	$53	$53	$53	$53	$53	$53	$53	$53	$53	$53	$53	$630
Miscellaneous	$53	$53	$53	$53	$53	$53	$53	$53	$53	$53	$53	$53	$630
Contract Labor	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$36,000
Depreciation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Amortization	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Subtotal	$18,096	$18,096	$18,096	$18,096	$18,096	$18,096	$18,096	$18,096	$18,096	$18,096	$18,096	$18,096	$217,158
Income Taxes	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
TOTAL CASH PAID	$18,096	$18,096	$18,096	$18,096	$18,096	$18,096	$18,096	$18,096	$18,096	$18,096	$18,096	$18,096	$217,158
CHANGE IN CASH	$16,904	$21,904	$26,904	$31,904	$36,904	$41,904	$46,904	$51,904	$56,904	$56,904	$56,904	$56,904	$502,842
Beginning Balance	$127,198	$144,102	$166,005	$192,909	$224,812	$261,716	$303,619	$350,523	$402,426	$459,330	$516,233	$573,137	
Ending Balance	$144,102	$166,005	$192,909	$224,812	$261,716	$303,619	$350,523	$402,426	$459,330	$516,233	$573,137	$630,040	

Client Name:	**InTouch LLC**	**The South Dakota Small Business Development Center has prepared these**
FINANCIAL STATEMENT:	**Pro Forma Balance Sheets**	**financial projections from information communicated by the Client.**
Date Prepared	11/9/2017	**We are not licensed by the state of South Dakota to practice Public Accounting**
		and can therefore give no opinion or assurance on the statements.

Year 2	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20
Cash	$144,102	$166,005	$192,909	$224,812	$261,716	$303,619	$350,523	$402,426	$459,330	$516,233	$573,137	$630,040
Other	$200	$200	$200	$200	$200	$200	$200	$200	$200	$200	$200	$200
Current Assets	$144,302	$166,205	$193,109	$225,012	$261,916	$303,819	$350,723	$402,626	$459,530	$516,433	$573,337	$630,240
Net Fixed Assets	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Net Intangibles	$186	$184	$183	$182	$181	$180	$179	$178	$177	$176	$174	$173
TOTAL ASSETS	$144,487	$166,389	$193,292	$225,194	$262,097	$303,999	$350,901	$402,804	$459,706	$516,609	$573,511	$630,413
Taxes Payable	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Current Liabilities	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total Liabilities	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Common Stock	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Add'l Equity Injections	$175,400	$175,400	$175,400	$175,400	$175,400	$175,400	$175,400	$175,400	$175,400	$175,400	$175,400	$175,400
Retained Earnings	($30,913)	($9,011)	$17,892	$49,794	$86,697	$128,599	$175,501	$227,404	$284,306	$341,209	$398,111	$455,013
Total Owner's Equity	$144,487	$166,389	$193,292	$225,194	$262,097	$303,999	$350,901	$402,804	$459,706	$516,609	$573,511	$630,413
TOT LIA & NET WORTH	$144,487	$166,389	$193,292	$225,194	$262,097	$303,999	$350,901	$402,804	$459,706	$516,609	$573,511	$630,413
CHECK	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0

Client Name:	InTouch LLC	The South Dakota Small Business Development Center has prepared these
FINANCIAL STATEMENT:	Pro Forma Income Statement	financial projections from information communicated by the Client.
Date Prepared	11/9/2017	We are not licensed by the state of South Dakota to practice Public Accounting and can therefore give no opinion or assurance on the statements.

Year 3		May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	TOTALS	
REVENUE		$80,000	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000	$960,000	100.0%
COST OF GOODS SOLD		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0.0%
GROSS PROFIT		$80,000	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000	$960,000	100.0%
						5.0% Expense Growth									
EXPENSES:															
Owner's Salary		$9,647	$9,647	$9,647	$9,647	$9,647	$9,647	$9,647	$9,647	$9,647	$9,647	$9,647	$9,647	$115,763	12.1%
Owner Payroll Taxes	15.30%	$1,476	$1,476	$1,476	$1,476	$1,476	$1,476	$1,476	$1,476	$1,476	$1,476	$1,476	$1,476	$17,712	1.8%
Fixed Employee Wages		$4,000	$4,000	$4,000	$4,000	$4,000	$4,000	$4,000	$4,000	$4,000	$4,000	$4,000	$4,000	$48,000	5.0%
Fixed Payroll Taxes	10.35%	$414	$414	$414	$414	$414	$414	$414	$414	$414	$414	$414	$414	$4,968	0.5%
Outside Services		$260	$260	$260	$260	$260	$260	$260	$260	$260	$260	$260	$260	$3,122	0.3%
Supplies		$55	$55	$55	$55	$55	$55	$55	$55	$55	$55	$55	$55	$662	0.1%
Ad/Promotion		$551	$551	$551	$551	$551	$551	$551	$551	$551	$551	$551	$551	$6,615	0.7%
Car/Travel		$110	$110	$110	$110	$110	$110	$110	$110	$110	$110	$110	$110	$1,323	0.1%
Acct & Legal		$110	$110	$110	$110	$110	$110	$110	$110	$110	$110	$110	$110	$1,323	0.1%
Telephone		$55	$55	$55	$55	$55	$55	$55	$55	$55	$55	$55	$55	$662	0.1%
Insurance		$55	$55	$55	$55	$55	$55	$55	$55	$55	$55	$55	$55	$662	0.1%
Miscellaneous		$55	$55	$55	$55	$55	$55	$55	$55	$55	$55	$55	$55	$662	0.1%
Contract Labor		$3,150	$3,150	$3,150	$3,150	$3,150	$3,150	$3,150	$3,150	$3,150	$3,150	$3,150	$3,150	$37,800	3.9%
Depreciation		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0.0%
Amortization		$1	$1	$1	$1	$1	$1	$1	$1	$1	$1	$1	$1	$13	0.0%
TOTAL EXPENSES		$19,940	$19,940	$19,940	$19,940	$19,940	$19,940	$19,940	$19,940	$19,940	$19,940	$19,940	$19,940	$239,285	24.9%
NET PROFIT BEFORE TAX		$60,060	$60,060	$60,060	$60,060	$60,060	$60,060	$60,060	$60,060	$60,060	$60,060	$60,060	$60,060	$720,715	75.1%
INCOME TAX	0.0%	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0.0%
NET INCOME		$60,060	$60,060	$60,060	$60,060	$60,060	$60,060	$60,060	$60,060	$60,060	$60,060	$60,060	$60,060	$720,715	75.1%

PROFIT CENTERS														
Revenue	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000	$960,000	100%
TOTAL	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000	$960,000	100%

Client Name:	**InTouch LLC**	**The South Dakota Small Business Development Center has prepared these**	
FINANCIAL STATEMENT:	**Pro Forma Cash Flow**	**financial projections from information communicated by the Client.**	
Date Prepared	11/9/2017	**We are not licensed by the state of South Dakota to practice Public Accounting**	
		and can therefore give no opinion or assurance on the statements.	

BUDGET MONTH **Year 3**	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	Totals
CASH INFLOW													
Cash Sales	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000	$960,000
Collection from Credit	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
TOTAL CASH RECEIVED	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000	$960,000
CASH PAID OUT													
Cost of Goods Sold	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Owner's Salary	$9,647	$9,647	$9,647	$9,647	$9,647	$9,647	$9,647	$9,647	$9,647	$9,647	$9,647	$9,647	$115,763
Owner Payroll Taxes	$1,476	$1,476	$1,476	$1,476	$1,476	$1,476	$1,476	$1,476	$1,476	$1,476	$1,476	$1,476	$17,712
Fixed Employee Wages	$4,000	$4,000	$4,000	$4,000	$4,000	$4,000	$4,000	$4,000	$4,000	$4,000	$4,000	$4,000	$48,000
Fixed Payroll Taxes	$414	$414	$414	$414	$414	$414	$414	$414	$414	$414	$414	$414	$4,968
Outside Services	$260	$260	$260	$260	$260	$260	$260	$260	$260	$260	$260	$260	$3,122
Supplies	$55	$55	$55	$55	$55	$55	$55	$55	$55	$55	$55	$55	$662
Ad/Promotion	$551	$551	$551	$551	$551	$551	$551	$551	$551	$551	$551	$551	$6,615
Car/Travel	$110	$110	$110	$110	$110	$110	$110	$110	$110	$110	$110	$110	$1,323
Acct & Legal	$110	$110	$110	$110	$110	$110	$110	$110	$110	$110	$110	$110	$1,323
Telephone	$55	$55	$55	$55	$55	$55	$55	$55	$55	$55	$55	$55	$662
Insurance	$55	$55	$55	$55	$55	$55	$55	$55	$55	$55	$55	$55	$662
Miscellaneous	$55	$55	$55	$55	$55	$55	$55	$55	$55	$55	$55	$55	$662
Contract Labor	$3,150	$3,150	$3,150	$3,150	$3,150	$3,150	$3,150	$3,150	$3,150	$3,150	$3,150	$3,150	$37,800
Depreciation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Amortization	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Subtotal	$19,939	$19,939	$19,939	$19,939	$19,939	$19,939	$19,939	$19,939	$19,939	$19,939	$19,939	$19,939	$239,271
Income Taxes	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
TOTAL CASH PAID	$19,939	$19,939	$19,939	$19,939	$19,939	$19,939	$19,939	$19,939	$19,939	$19,939	$19,939	$19,939	$239,271
CHANGE IN CASH	$60,061	$60,061	$60,061	$60,061	$60,061	$60,061	$60,061	$60,061	$60,061	$60,061	$60,061	$60,061	$720,729
Beginning Balance	$630,040	$690,101	$750,162	$810,222	$870,283	$930,344	$990,404	$1,050,465	$1,110,526	$1,170,587	$1,230,647	$1,290,708	
Ending Balance	$690,101	$750,162	$810,222	$870,283	$930,344	$990,404	$1,050,465	$1,110,526	$1,170,587	$1,230,647	$1,290,708	$1,350,769	

Client Name:	**InTouch LLC**	**The South Dakota Small Business Development Center has prepared these**										
FINANCIAL STATEMENT:	**Pro Forma Balance Sheets**	**financial projections from information communicated by the Client.**										
Date Prepared	11/9/2017	**We are not licensed by the state of South Dakota to practice Public Accounting**										
		and can therefore give no opinion or assurance on the statements.										

Year 3	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21
Cash	$690,101	$750,162	$810,222	$870,283	$930,344	$990,404	$1,050,465	$1,110,526	$1,170,587	$1,230,647	$1,290,708	$1,350,769
Other	$200	$200	$200	$200	$200	$200	$200	$200	$200	$200	$200	$200
Current Assets	$690,301	$750,362	$810,422	$870,483	$930,544	$990,604	$1,050,665	$1,110,726	$1,170,787	$1,230,847	$1,290,908	$1,350,969
Net Fixed Assets	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Net Intangibles	$172	$171	$170	$169	$168	$167	$166	$164	$163	$162	$161	$160
TOTAL ASSETS	$690,473	$750,533	$810,592	$870,652	$930,711	$990,771	$1,050,831	$1,110,890	$1,170,950	$1,231,010	$1,291,069	$1,351,129
Taxes Payable	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Current Liabilities	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total Liabilities	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Common Stock	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Add'l Equity Injections	$175,400	$175,400	$175,400	$175,400	$175,400	$175,400	$175,400	$175,400	$175,400	$175,400	$175,400	$175,400
Retained Earnings	$515,073	$575,133	$635,192	$695,252	$755,311	$815,371	$875,431	$935,490	$995,550	$1,055,610	$1,115,669	$1,175,729
Total Owner's Equity	$690,473	$750,533	$810,592	$870,652	$930,711	$990,771	$1,050,831	$1,110,890	$1,170,950	$1,231,010	$1,291,069	$1,351,129
TOT LIA & NET WORTH	$690,473	$750,533	$810,592	$870,652	$930,711	$990,771	$1,050,831	$1,110,890	$1,170,950	$1,231,010	$1,291,069	$1,351,129
CHECK	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0

Client Name:	**InTouch LLC**	**The South Dakota Small Business Development Center has prepared these**		
FINANCIAL STATEMENT:	**Pro Forma Income Statement**	**financial projections from information communicated by the Client.**		
Date Prepared	11/9/2017	**We are not licensed by the state of South Dakota to practice Public Accounting**		
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Year 4		May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22	Apr-22	TOTALS	
REVENUE		$90,000	$90,000	$90,000	$90,000	$90,000	$90,000	$90,000	$90,000	$90,000	$90,000	$90,000	$90,000	$1,080,000	100.0%
COST OF GOODS SOLD		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0.0%
GROSS PROFIT		$90,000	$90,000	$90,000	$90,000	$90,000	$90,000	$90,000	$90,000	$90,000	$90,000	$90,000	$90,000	$1,080,000	100.0%
						5.0% Expense Growth									
EXPENSES:															
Owner's Salary		$10,129	$10,129	$10,129	$10,129	$10,129	$10,129	$10,129	$10,129	$10,129	$10,129	$10,129	$10,129	$121,551	11.3%
Owner Payroll Taxes	15.30%	$1,550	$1,550	$1,550	$1,550	$1,550	$1,550	$1,550	$1,550	$1,550	$1,550	$1,550	$1,550	$18,597	1.7%
Fixed Employee Wages		$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$60,000	5.6%
Fixed Payroll Taxes	10.35%	$518	$518	$518	$518	$518	$518	$518	$518	$518	$518	$518	$518	$6,210	0.6%
Outside Services		$273	$273	$273	$273	$273	$273	$273	$273	$273	$273	$273	$273	$3,278	0.3%
Supplies		$58	$58	$58	$58	$58	$58	$58	$58	$58	$58	$58	$58	$695	0.1%
Ad/Promotion		$579	$579	$579	$579	$579	$579	$579	$579	$579	$579	$579	$579	$6,946	0.6%
Car/Travel		$116	$116	$116	$116	$116	$116	$116	$116	$116	$116	$116	$116	$1,389	0.1%
Acct & Legal		$116	$116	$116	$116	$116	$116	$116	$116	$116	$116	$116	$116	$1,389	0.1%
Telephone		$58	$58	$58	$58	$58	$58	$58	$58	$58	$58	$58	$58	$695	0.1%
Insurance		$58	$58	$58	$58	$58	$58	$58	$58	$58	$58	$58	$58	$695	0.1%
Miscellaneous		$58	$58	$58	$58	$58	$58	$58	$58	$58	$58	$58	$58	$695	0.1%
Contract Labor		$3,308	$3,308	$3,308	$3,308	$3,308	$3,308	$3,308	$3,308	$3,308	$3,308	$3,308	$3,308	$39,690	3.7%
Depreciation		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0.0%
Amortization		$1	$1	$1	$1	$1	$1	$1	$1	$1	$1	$1	$1	$13	0.0%
TOTAL EXPENSES		$21,820	$21,820	$21,820	$21,820	$21,820	$21,820	$21,820	$21,820	$21,820	$21,820	$21,820	$21,820	$261,842	24.2%
NET PROFIT BEFORE TAX		$68,180	$68,180	$68,180	$68,180	$68,180	$68,180	$68,180	$68,180	$68,180	$68,180	$68,180	$68,180	$818,158	75.8%
INCOME TAX	0.0%	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0.0%
NET INCOME		$68,180	$68,180	$68,180	$68,180	$68,180	$68,180	$68,180	$68,180	$68,180	$68,180	$68,180	$68,180	$818,158	75.8%

PROFIT CENTERS														
Revenue	$90,000	$90,000	$90,000	$90,000	$90,000	$90,000	$90,000	$90,000	$90,000	$90,000	$90,000	$90,000	$1,080,000	100%
TOTAL	$90,000	$90,000	$90,000	$90,000	$90,000	$90,000	$90,000	$90,000	$90,000	$90,000	$90,000	$90,000	$1,080,000	100%

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FINANCIAL STATEMENT:	**Pro Forma Cash Flow**	**financial projections from information communicated by the Client.**
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BUDGET MONTH **Year 4**	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22	Apr-22	TOTAL
CASH INFLOW													
Cash Sales	$90,000	$90,000	$90,000	$90,000	$90,000	$90,000	$90,000	$90,000	$90,000	$90,000	$90,000	$90,000	$1,080,000
Collection from Credit	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
TOTAL CASH RECEIVED	$90,000	$90,000	$90,000	$90,000	$90,000	$90,000	$90,000	$90,000	$90,000	$90,000	$90,000	$90,000	$1,080,000
CASH PAID OUT													
Cost of Goods Sold	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Owner's Salary	$10,129	$10,129	$10,129	$10,129	$10,129	$10,129	$10,129	$10,129	$10,129	$10,129	$10,129	$10,129	$121,551
Owner Payroll Taxes	$1,550	$1,550	$1,550	$1,550	$1,550	$1,550	$1,550	$1,550	$1,550	$1,550	$1,550	$1,550	$18,597
Fixed Employee Wages	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$60,000
Fixed Payroll Taxes	$518	$518	$518	$518	$518	$518	$518	$518	$518	$518	$518	$518	$6,210
Outside Services	$273	$273	$273	$273	$273	$273	$273	$273	$273	$273	$273	$273	$3,278
Supplies	$58	$58	$58	$58	$58	$58	$58	$58	$58	$58	$58	$58	$695
Ad/Promotion	$579	$579	$579	$579	$579	$579	$579	$579	$579	$579	$579	$579	$6,946
Car/Travel	$116	$116	$116	$116	$116	$116	$116	$116	$116	$116	$116	$116	$1,389
Acct & Legal	$116	$116	$116	$116	$116	$116	$116	$116	$116	$116	$116	$116	$1,389
Telephone	$58	$58	$58	$58	$58	$58	$58	$58	$58	$58	$58	$58	$695
Insurance	$58	$58	$58	$58	$58	$58	$58	$58	$58	$58	$58	$58	$695
Miscellaneous	$58	$58	$58	$58	$58	$58	$58	$58	$58	$58	$58	$58	$695
Contract Labor	$3,308	$3,308	$3,308	$3,308	$3,308	$3,308	$3,308	$3,308	$3,308	$3,308	$3,308	$3,308	$39,690
Depreciation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Amortization	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Subtotal	$21,819	$21,819	$21,819	$21,819	$21,819	$21,819	$21,819	$21,819	$21,819	$21,819	$21,819	$21,819	$261,829
Income Taxes	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
TOTAL CASH PAID	$21,819	$21,819	$21,819	$21,819	$21,819	$21,819	$21,819	$21,819	$21,819	$21,819	$21,819	$21,819	$261,829
CHANGE IN CASH	$68,181	$68,181	$68,181	$68,181	$68,181	$68,181	$68,181	$68,181	$68,181	$68,181	$68,181	$68,181	$818,171
Beginning Balance	$1,350,769	$1,418,950	$1,487,131	$1,555,312	$1,623,493	$1,691,673	$1,759,854	$1,828,035	$1,896,216	$1,964,397	$2,032,578	$2,100,759	
Ending Balance	$1,418,950	$1,487,131	$1,555,312	$1,623,493	$1,691,673	$1,759,854	$1,828,035	$1,896,216	$1,964,397	$2,032,578	$2,100,759	$2,168,940	

Client Name:	**InTouch LLC**				**The South Dakota Small Business Development Center has prepared these**							
FINANCIAL STATEMENT:	**Pro Forma Balance Sheets**				**financial projections from information communicated by the Client.**							
Date Prepared	11/9/2017				**We are not licensed by the state of South Dakota to practice Public Accounting**							
					and can therefore give no opinion or assurance on the statements.							
Year 4	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22	Apr-22
Cash	$1,418,950	$1,487,131	$1,555,312	$1,623,493	$1,691,673	$1,759,854	$1,828,035	$1,896,216	$1,964,397	$2,032,578	$2,100,759	$2,168,940
Other	$200	$200	$200	$200	$200	$200	$200	$200	$200	$200	$200	$200
Current Assets	$1,419,150	$1,487,331	$1,555,512	$1,623,693	$1,691,873	$1,760,054	$1,828,235	$1,896,416	$1,964,597	$2,032,778	$2,100,959	$2,169,140
Net Fixed Assets	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Net Intangibles	$159	$158	$157	$156	$154	$153	$152	$151	$150	$149	$148	$147
TOTAL ASSETS	$1,419,309	$1,487,488	$1,555,668	$1,623,848	$1,692,028	$1,760,208	$1,828,388	$1,896,567	$1,964,747	$2,032,927	$2,101,107	$2,169,287
Taxes Payable	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Current Liabilities	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total Liabilities	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Common Stock	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Add'l Equity Injections	$175,400	$175,400	$175,400	$175,400	$175,400	$175,400	$175,400	$175,400	$175,400	$175,400	$175,400	$175,400
Retained Earnings	$1,243,909	$1,312,088	$1,380,268	$1,448,448	$1,516,628	$1,584,808	$1,652,988	$1,721,167	$1,789,347	$1,857,527	$1,925,707	$1,993,887
Total Owner's Equity	$1,419,309	$1,487,488	$1,555,668	$1,623,848	$1,692,028	$1,760,208	$1,828,388	$1,896,567	$1,964,747	$2,032,927	$2,101,107	$2,169,287
TOT LIA & NET WORTH	$1,419,309	$1,487,488	$1,555,668	$1,623,848	$1,692,028	$1,760,208	$1,828,388	$1,896,567	$1,964,747	$2,032,927	$2,101,107	$2,169,287
CHECK	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0

Client Name:	InTouch LLC	The South Dakota Small Business Development Center has prepared these
FINANCIAL STATEMENT:	Pro Forma Income Statement	financial projections from information communicated by the Client.
Date Prepared	11/9/2017	We are not licensed by the state of South Dakota to practice Public Accounting and can therefore give no opinion or assurance on the statements.

Year 5		May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	TOTALS	
REVENUE		$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$1,200,000	100.0%
COST OF GOODS SOLD		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0.0%
GROSS PROFIT		$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$1,200,000	100.0%
						5.0% Expense Growth									
EXPENSES:															
Owner's Salary		$10,636	$10,636	$10,636	$10,636	$10,636	$10,636	$10,636	$10,636	$10,636	$10,636	$10,636	$10,636	$127,628	10.6%
Owner Payroll Taxes	15.30%	$1,627	$1,627	$1,627	$1,627	$1,627	$1,627	$1,627	$1,627	$1,627	$1,627	$1,627	$1,627	$19,527	1.6%
Fixed Employee Wages		$5,250	$5,250	$5,250	$5,250	$5,250	$5,250	$5,250	$5,250	$5,250	$5,250	$5,250	$5,250	$63,000	5.3%
Fixed Payroll Taxes	10.35%	$543	$543	$543	$543	$543	$543	$543	$543	$543	$543	$543	$543	$6,521	0.5%
Outside Services		$287	$287	$287	$287	$287	$287	$287	$287	$287	$287	$287	$287	$3,442	0.3%
Supplies		$61	$61	$61	$61	$61	$61	$61	$61	$61	$61	$61	$61	$729	0.1%
Ad/Promotion		$608	$608	$608	$608	$608	$608	$608	$608	$608	$608	$608	$608	$7,293	0.6%
Car/Travel		$122	$122	$122	$122	$122	$122	$122	$122	$122	$122	$122	$122	$1,459	0.1%
Acct & Legal		$122	$122	$122	$122	$122	$122	$122	$122	$122	$122	$122	$122	$1,459	0.1%
Telephone		$61	$61	$61	$61	$61	$61	$61	$61	$61	$61	$61	$61	$729	0.1%
Insurance		$61	$61	$61	$61	$61	$61	$61	$61	$61	$61	$61	$61	$729	0.1%
Miscellaneous		$61	$61	$61	$61	$61	$61	$61	$61	$61	$61	$61	$61	$729	0.1%
Contract Labor		$3,473	$3,473	$3,473	$3,473	$3,473	$3,473	$3,473	$3,473	$3,473	$3,473	$3,473	$3,473	$41,675	3.5%
Depreciation		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0.0%
Amortization		$1	$1	$1	$1	$1	$1	$1	$1	$1	$1	$1	$1	$13	0.0%
TOTAL EXPENSES		$22,911	$22,911	$22,911	$22,911	$22,911	$22,911	$22,911	$22,911	$22,911	$22,911	$22,911	$22,911	$274,933	22.9%
NET PROFIT BEFORE TAX		$77,089	$77,089	$77,089	$77,089	$77,089	$77,089	$77,089	$77,089	$77,089	$77,089	$77,089	$77,089	$925,067	77.1%
INCOME TAX	0.0%	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0.0%
NET INCOME		$77,089	$77,089	$77,089	$77,089	$77,089	$77,089	$77,089	$77,089	$77,089	$77,089	$77,089	$77,089	$925,067	77.1%

PROFIT CENTERS														
Revenue	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$1,200,000	100%
TOTAL	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$1,200,000	100%

Client Name:	**InTouch LLC**	**The South Dakota Small Business Development Center has prepared these**	
FINANCIAL STATEMENT:	**Pro Forma Cash Flow**	**financial projections from information communicated by the Client.**	
Date Prepared	11/9/2017	**We are not licensed by the state of South Dakota to practice Public Accounting**	
		and can therefore give no opinion or assurance on the statements.	

BUDGET MONTH **Year 5**	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	TOTAL
CASH INFLOW													
Cash Sales	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$1,200,000
Collection from Credit	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
TOTAL CASH RECEIVED	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$1,200,000
CASH PAID OUT													
Cost of Goods Sold	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Owner's Salary	$10,636	$10,636	$10,636	$10,636	$10,636	$10,636	$10,636	$10,636	$10,636	$10,636	$10,636	$10,636	$127,628
Owner Payroll Taxes	$1,627	$1,627	$1,627	$1,627	$1,627	$1,627	$1,627	$1,627	$1,627	$1,627	$1,627	$1,627	$19,527
Fixed Employee Wages	$5,250	$5,250	$5,250	$5,250	$5,250	$5,250	$5,250	$5,250	$5,250	$5,250	$5,250	$5,250	$63,000
Fixed Payroll Taxes	$543	$543	$543	$543	$543	$543	$543	$543	$543	$543	$543	$543	$6,521
Outside Services	$287	$287	$287	$287	$287	$287	$287	$287	$287	$287	$287	$287	$3,442
Supplies	$61	$61	$61	$61	$61	$61	$61	$61	$61	$61	$61	$61	$729
Ad/Promotion	$608	$608	$608	$608	$608	$608	$608	$608	$608	$608	$608	$608	$7,293
Car/Travel	$122	$122	$122	$122	$122	$122	$122	$122	$122	$122	$122	$122	$1,459
Acct & Legal	$122	$122	$122	$122	$122	$122	$122	$122	$122	$122	$122	$122	$1,459
Telephone	$61	$61	$61	$61	$61	$61	$61	$61	$61	$61	$61	$61	$729
Insurance	$61	$61	$61	$61	$61	$61	$61	$61	$61	$61	$61	$61	$729
Miscellaneous	$61	$61	$61	$61	$61	$61	$61	$61	$61	$61	$61	$61	$729
Contract Labor	$3,473	$3,473	$3,473	$3,473	$3,473	$3,473	$3,473	$3,473	$3,473	$3,473	$3,473	$3,473	$41,675
Depreciation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Amortization	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Subtotal	$22,910	$22,910	$22,910	$22,910	$22,910	$22,910	$22,910	$22,910	$22,910	$22,910	$22,910	$22,910	$274,920
Income Taxes	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
TOTAL CASH PAID	$22,910	$22,910	$22,910	$22,910	$22,910	$22,910	$22,910	$22,910	$22,910	$22,910	$22,910	$22,910	$274,920
CHANGE IN CASH	$77,090	$77,090	$77,090	$77,090	$77,090	$77,090	$77,090	$77,090	$77,090	$77,090	$77,090	$77,090	$925,080
Beginning Balance	$2,168,940	$2,246,030	$2,323,120	$2,400,210	$2,477,300	$2,554,390	$2,631,480	$2,708,570	$2,785,660	$2,862,750	$2,939,840	$3,016,930	
Ending Balance	$2,246,030	$2,323,120	$2,400,210	$2,477,300	$2,554,390	$2,631,480	$2,708,570	$2,785,660	$2,862,750	$2,939,840	$3,016,930	$3,094,020	

Client Name:	**InTouch LLC**	**The South Dakota Small Business Development Center has prepared these**
FINANCIAL STATEMENT:	**Pro Forma Balance Sheets**	**financial projections from information communicated by the Client.**
Date Prepared	11/9/2017	**We are not licensed by the state of South Dakota to practice Public Accounting**
		and can therefore give no opinion or assurance on the statements.

Year 5	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23
Cash	$2,246,030	$2,323,120	$2,400,210	$2,477,300	$2,554,390	$2,631,480	$2,708,570	$2,785,660	$2,862,750	$2,939,840	$3,016,930	$3,094,020
Other	$200	$200	$200	$200	$200	$200	$200	$200	$200	$200	$200	$200
Current Assets	$2,246,230	$2,323,320	$2,400,410	$2,477,500	$2,554,590	$2,631,680	$2,708,770	$2,785,860	$2,862,950	$2,940,040	$3,017,130	$3,094,220
Net Fixed Assets	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Net Intangibles	$146	$144	$143	$142	$141	$140	$139	$138	$137	$136	$134	$133
TOTAL ASSETS	$2,246,376	$2,323,465	$2,400,553	$2,477,642	$2,554,731	$2,631,820	$2,708,909	$2,785,998	$2,863,087	$2,940,176	$3,017,264	$3,094,353
Taxes Payable	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Current Liabilities	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total Liabilities	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Common Stock	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Add'l Equity Injections	$175,400	$175,400	$175,400	$175,400	$175,400	$175,400	$175,400	$175,400	$175,400	$175,400	$175,400	$175,400
Retained Earnings	$2,070,976	$2,148,065	$2,225,153	$2,302,242	$2,379,331	$2,456,420	$2,533,509	$2,610,598	$2,687,687	$2,764,776	$2,841,864	$2,918,953
Total Owner's Equity	$2,246,376	$2,323,465	$2,400,553	$2,477,642	$2,554,731	$2,631,820	$2,708,909	$2,785,998	$2,863,087	$2,940,176	$3,017,264	$3,094,353
TOT LIA & NET WORTH	$2,246,376	$2,323,465	$2,400,553	$2,477,642	$2,554,731	$2,631,820	$2,708,909	$2,785,998	$2,863,087	$2,940,176	$3,017,264	$3,094,353
CHECK	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0

Client Name:	InTouch LLC	**The South Dakota Small Business Development Center has prepared these financial projections from information communicated by the Client. We are not licensed by the state of South Dakota to practice Public Accounting and can therefore give no opinion or assurance on the statements.**
FINANCIAL STATEMENT:	Depreciation & Amortization Schedule	
Date Prepared	11/9/2017	

Organizational Expense		$200	15	S/L	$13
Total Amortization					$13

Total Annual Depreciation and Amortization Expense (Year 1)	$13

BREAK-EVEN ANALYSIS - YEAR 1	
GROSS SALES	$120,000
COST OF GOODS	$0
GROSS MARGIN	$120,000

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ITEMS	FIXED EXPENSES	VARIABLE EXPENSES
Owner's Salary	$105,000	
Owner Payroll Taxes	$16,065	
Fixed Employee Wages	$30,000	
Fixed Payroll Taxes	$3,105	
Outside Services	$2,832	
Supplies	$600	
Ad/Promotion	$6,000	
Car/Travel	$1,200	
Acct & Legal	$1,200	
Telephone	$600	
Insurance	$600	
Miscellaneous	$600	
Contract Labor	$0	
Depreciation	$0	
Amortization	$13	
Principal Pmt	$0	
Interest	$0	
Int-Line of Credit	$0	
TOTALS	$167,815	$0

Break Even Point in Cash Flow (Year 2):	$217,158
Break Even Point in Cash Flow (Year 3):	$239,271
Break Even Point in Cash Flow (Year 4):	$261,829
Break Even Point in Cash Flow (Year 5):	$274,920

	BREAK-EVEN POINT	% OF PROJECTED SALES
BASED ON EXPENSES	$167,815	140%
BASED ON CASH FLOW	**$167,802**	**140%**

VOLUME PROFIT RATIO AFTER BREAK-EVEN

SALES %	GROSS SALES VOLUME	PROFIT
50.0%	$60,000	($107,815)
66.7%	$80,000	($87,815)
75.0%	$90,000	($77,815)
125.0%	$150,000	($17,815)
150.0%	$180,000	$12,185
200.0%	$240,000	$72,185

Debt Coverage Ratio Analysis	Projected Year 1	Projected Year 2	Projected Year 3	Projected Year 4	Projected Year 5
Net Profit Before Taxes	($47,815)	$502,829	$720,715	$818,158	$925,067
+ Depreciation	$0	$0	$0	$0	$0
+ Amortization	$13	$13	$13	$13	$13
+ Interest	$0	$0	$0	$0	$0
- Increase in Permanent Working Capital	$0	$0	$0	$0	$0
- New Capital Expenditures (Net of New Loans Injected)	$0	$0	$0	$0	$0
= Total Cash Flow Available for D/S	($47,802)	$502,842	$720,729	$818,171	$925,080
/ Total Debt Service	$0	$0	$0	$0	$0
= Debt Coverage Ratio					

Client Name:	**InTouch LLC**	
FINANCIAL STATEMENT:	**Comparison Ratios**	
Date Prepared	11/9/2017	

SIC/NAICS Code: 0

		Industry Average	Year 1	Year 2	Year 3	Year 4	Year 5
	Net Sales:		$120,000	$720,000	$960,000	$1,080,000	$1,200,000
	Total Assets:		$127,585	$630,413	$1,351,129	$2,169,287	$3,094,353
Assets:	Cash & Equivalents	0.0%	99.7%	99.9%	100.0%	100.0%	100.0%
	Accounts Receivable	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Inventory	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Other Current	0.0%	0.2%	0.0%	0.0%	0.0%	0.0%
	Total Current Assets	0.0%	99.9%	100.0%	100.0%	100.0%	100.0%
	Net Fixed Assets	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Intangibles	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%
	Other Non-Current	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Liabilities:	Notes Payable-Short Term	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	CPLTD	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Accounts Payable	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Income Taxes Payable	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Other Current Liabilities	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Total Current Liabilities	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Long Term Debt	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Deffered Taxes	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Other Non-Current Liabilities	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Net Worth	0.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	Total Liabilities & Net Worth	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Income Data:	Net Sales	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	Gross Profit	0.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	Operating Expenses	0.0%	139.8%	30.2%	24.9%	24.2%	22.9%
	Operating Profit	0.0%	-39.8%	69.8%	75.1%	75.8%	77.1%
	All Other Expenses	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Profit Before Taxes	0.0%	-39.8%	69.8%	75.1%	75.8%	77.1%

			Year 1		Year 2		Year 3		Year 4		Year 5	
Ratios:	Current Ratio	0.0	0.0		0.0		0.0		0.0		0.0	
	Quick Ratio	0.0	0.0		0.0		0.0		0.0		0.0	
	Sales/Receivables	0.0	0.0	**0**	0.0	**0**	0.0	**0**	0.0	**0**	0.0	**0**
	COGS/Inventory	0.0	0.0	**0**	0.0	**0**	0.0	**0**	0.0	**0**	0.0	**0**
	COGS/Payables	0.0	0.0	**0**	0.0	**0**	0.0	**0**	0.0	**0**	0.0	**0**
	Sales/Working Capital	0.0	0.9		1.1		0.7		0.5		0.4	
	EBIT/Interest	0.0	0.0		0.0		0.0		0.0		0.0	
	Net Profit+Depr., Dep., Amort/ CPLTD	0.0	0.0		0.0		0.0		0.0		0.0	
	Fixed/Worth	0.0	0.0		0.0		0.0		0.0		0.0	
	Debt/Worth	0.0	0.0		0.0		0.0		0.0		0.0	
	% Profit Before Taxes / Tangible Net Worth	0.0%	-37.5%		79.8%		53.3%		37.7%		29.9%	
	% Profit Before Taxes / Total Assets	0.0%	-37.5%		79.8%		53.3%		37.7%		29.9%	
	Sales/Net Fixed Assets	0.0	0.0		0.0		0.0		0.0		0.0	
	Sales/Total Assets	0.0	0.9		1.1		0.7		0.5		0.4	
	% Depr., Dep., Amort/Sales	0.0%	0.0%		0.0%		0.0%		0.0%		0.0%	
	% Compensation/Sales	0.0%	87.5%		15.3%		12.1%		11.3%		10.6%	

E

Experimental Log

For research projects one needs to keep a log of all research/lab activities.

10/15/15 Ran modified filter on data sets 1 - 6. Results were ...

10/17/15 Changed tolerance on sensor and collected data. These ...

F

Publications

Research Track: This chapter will include any publications generated from the research. Most likely these will be preprints and one will just include the pdf.

G

Acknowledgment

Thanks

H

Supporting Materials

This document will contain several appendices used as a way to separate out major component details, logic details, or tables of information. Use of this structure will help keep the document clean, readable, and organized.

LaTeX Example

LaTeX sample file: Remove from submitted materials

1 Introduction

This is a sample input file. Comparing it with the output it generates can show you how to produce a simple document of your own.

2 Ordinary Text

The ends of words and sentences are marked by spaces. It doesn't matter how many spaces you type; one is as good as 100. The end of a line counts as a space.

One or more blank lines denote the end of a paragraph.

Since any number of consecutive spaces are treated like a single one, the formatting of the input file makes no difference to TeX, but it makes a difference to you. When you use LaTeX, making your input file as easy to read as possible will be a great help as you write your document and when you change it. This sample file shows how you can add comments to your own input file.

Because printing is different from typewriting, there are a number of things that you have to do differently when preparing an input file than if you were just typing the document directly. Quotation marks like "this" have to be handled specially, as do quotes within quotes: " 'this' is what I just wrote, not 'that' ".

Dashes come in three sizes: an intra-word dash, a medium dash for number ranges like 1–2, and a punctuation dash—like this.

A sentence-ending space should be larger than the space between words within a sentence. You sometimes have to type special commands in conjunction with punctuation characters to get this right, as in the following sentence. Gnats, gnus, etc. all begin with G. You should check the spaces after periods when reading your output to make sure you haven't forgotten any special cases. Generating an ellipsis ... with the right spacing around the periods requires a special command.

TeX interprets some common characters as commands, so you must type special commands to generate them. These characters include the following: $ & % # { and }.

In printing, text is emphasized by using an *italic* type style.

A long segment of text can also be emphasized in this way. Text within such a segment given additional emphasis with Roman *type. Italic type loses its ability to emphasize and become simply distracting when used excessively.*

It is sometimes necessary to prevent TeX from breaking a line where it might otherwise do so. This may be at a space, as between the "Mr." and "Jones" in "Mr. Jones", or within a word—especially when the word is a symbol like *itemnum* that makes little sense when hyphenated across lines.

Footnotes[1] pose no problem.

TeX is good at typesetting mathematical formulas like $x - 3y = 7$ or $a_1 > x^{2n}/y^{2n} > x'$. Remember that a letter like x is a formula when it denotes a mathematical symbol, and should be treated as one.

[1] This is an example of a footnote.

3 Displayed Text

Text is displayed by indenting it from the left margin. Quotations are commonly displayed. There are short quotations

> This is a short a quotation. It consists of a single paragraph of text. There is no paragraph indentation.

and longer ones.

> This is a longer quotation. It consists of two paragraphs of text. The beginning of each paragraph is indicated by an extra indentation.
>
> This is the second paragraph of the quotation. It is just as dull as the first paragraph.

Another frequently-displayed structure is a list. The following is an example of an *itemized* list.

- This is the first item of an itemized list. Each item in the list is marked with a "tick". The document style determines what kind of tick mark is used.
- This is the second item of the list. It contains another list nested inside it. The inner list is an *enumerated* list.
  1. This is the first item of an enumerated list that is nested within the itemized list.
  2. This is the second item of the inner list. LaTeX allows you to nest lists deeper than you really should.

  This is the rest of the second item of the outer list. It is no more interesting than any other part of the item.
- This is the third item of the list.

You can even display poetry.

> There is an environment for verse
> Whose features some poets will curse.
>
> For instead of making
> Them do *all* line breaking,
> It allows them to put too many words on a line when they'd rather be forced to be terse.

Mathematical formulas may also be displayed. A displayed formula is one-line long; multi-line formulas require special formatting instructions.

$$x' + y^2 = z_i^2$$

Don't start a paragraph with a displayed equation, nor make one a paragraph by itself.

4 Build process

To build LaTeX documents you need the latex program. It is free and available on all operating systems. Download and install. Many of us use the TexLive distribution and are very happy with it. You can use a editor and command line or use an IDE. To build this document via command line:

```
alta>  pdflatex SystemTemplate
```

If you change the bib entries, then you need to update the bib files:

```
alta>  pdflatex SystemTemplate
alta>  bibtex SystemTemplate
alta>  pdflatex SystemTemplate
alta>  pdflatex SystemTemplate
```

The template files provided also contain a Makefile, which will make things much easier.

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