Design Day Booklet Instructions

The Capstone Experience

Dr. Wayne Dyksen
Department of Computer Science and Engineering
Michigan State University
Fall 2019
Design Day Booklet

• Professional Publication
  ▪ Corporate Relations
  ▪ Alumni Relations
  ▪ Recruiting
  ▪ Keepsake for You

• Contents
  ▪ Schedule of Events
  ▪ Project Descriptions
Project Description Page

• Template Distributed by Dr. D.
  ▪ Sponsor Name
  ▪ Sponsor Logo
  ▪ Project Title
  ▪ MSU Team Photo
  ▪ MSU Team Members’ Names
  ▪ Corporate Sponsors’ Names
  ▪ Headers and Footers
  ▪ Posted On Downloads Page

• Template Completed by Team
  ▪ Project Description
  ▪ Artwork
  ▪ Use Microsoft Windows Version of Word
Team’s Job

• READ Instructions Carefully
• Check Everything
• MUST Use Microsoft Windows Version of Word
• READ Instructions Carefully
• Write Project Description
• READ Instructions Carefully
• Provide Artwork
• READ Instructions Carefully
• Check Everything 100 Times
• READ Instructions Carefully
Project Description

• READ Instructions Carefully
• Newspaper / Magazine Style
• Target General Public
• Do NOT Start “Our Project is…”
• Use present tense throughout.
• Write as though your project is complete.
• Fill the entire textbox.
• Technical Jargon
  ▪ At End
  ▪ At Least Two Lines
  ▪ At Most Three Lines
• See Examples
  ▪ The Capstone Experience Booklet
  ▪ Previous Design Day Booklets (Design Day > Booklet)
  ▪ MSU Men’s Basketball
Example Project Description: Spartan Basketball Player Timer

NCAA Division I basketball is very competitive. Although it may not be apparent to the casual observer, every detail of each game is carefully planned and scripted.

One aspect of a game plan is that of playing times. For each player, the coaches determine target times for how long he can play at a stretch, how long he needs to rest before playing again, and the total amount of time he should play in a game.

Developed with Coach Tom Izzo, our Spartan Basketball Player Timer is used by the basketball staff on the bench during the game.

When a player enters the game, his playing time is displayed with a solid green background. When his target playing time goes under two minutes, it is displayed in yellow. When the time goes below zero, it is displayed in red.

The color coding of times provides visual cues that can be seen by the coaches at a distance. If there are many yellow or red boxes, the coaches begin to plan substitutions.

A game summary for all the players can be displayed at any time whether the game clock is running or stopped.

Our software runs on a Microsoft Windows Tablet PC about the size of a traditional clipboard only slightly thicker. With no mouse or keyboard, all input is done with a pen.

Spartan Basketball Player Time is written in Visual Basic. The underlying database is Microsoft Access.
Artwork

- READ Instructions Carefully
- Screenshot(s) of Working Software
- Fill up the entire whitespace.
- Can Overlap
- Include “Framing”
  - Browser
  - iPhone, iPad
  - Android Phone or Tablet
  - NOT Laptop or Desktop
- Add Border
  - If Blends Into White Background
  - Create Single PNG Using PowerPoint
  - Read Instructions
- Very High Resolution
- Preserve Aspect Ratios
- Crop to Eliminate Transparent “Borders”
- Use paint.net
- See Examples
  - The Capstone Experience Booklets
  - Previous Design Day Booklets ([Design Day > Booklet](#))
  - MSU Men’s Basketball
The Capstone Experience

Artwork Example

Amazon
AVAST: Amazon Video And Shopping Technology

Founded in 1994 as an online bookstore, Amazon is the largest online retailer in the world. In addition to retail, Amazon offers services in cloud infrastructure through Amazon Web Services, and audio and video streaming through Amazon Music and Prime Video.

According to a recent study, 80% of internet usage will be people watching online videos by the year 2020. This presents a significant opportunity for all online retailers.

Our AVAST (Amazon Video And Shopping Technology) platform leverages the growth in online video streaming by providing users with an easy way to purchase products of interest that they see in the videos they are watching.

Using AVAST, an Amazon customer can stream videos from content providers such as YouTube and their favorite TV networks.

While a user is watching a video, AVAST analyzes it to find items of potential interest to the viewer. As the video plays, related Amazon products are displayed alongside the video as illustrated in the examples at the right.

For each item, AVAST displays a product description, picture and rating. A viewer can easily purchase any product simply by clicking on the conveniently provided link in-viewport.

The front-end of AVAST (Amazon Video And Shopping Technology) is built using Angular 6, while the backend is implemented using PHP Laminas. In addition, several Amazon Web Services are used including Rekognition to analyze videos, and EC2 to host the AVAST website.

Michigan State University
Team Members (left to right): Lixin Feng
Wenhao Zhou, Zhengming, China
Ben Neuchaba
Oak Park, Michigan
Patrick McConnell
Northville, Michigan
Ian McPherson
Clarkston, Michigan
Han Wang
Novi, Michigan

Amazon
Project Sponsors: Garrett Gaw
Detroit, Michigan
Derek Galhard
Detroit, Michigan
Kyle Gary
Detroit, Michigan
Pete Herlter
Detroit, Michigan
Aptiv is a global technology company that is transforming mobility with its portfolio of safe, green, and connected solutions for its customers.

As a leader in autonomous vehicle development, Aptiv maintains an extensive test fleet of autonomous vehicles, which must be managed and monitored.

Our Autonomous Vehicle Fleet Connectivity App provides connectivity to Aptiv’s autonomous test fleet, which operates across the U.S., Europe, and Asia, and includes various vehicles with software for every level of autonomy.

Among other features, our system provides scheduling of test vehicles. After logging in, Aptiv engineers see a calendar view of the entire fleet from which they can select a particular day to view a list of available vehicles. Once a vehicle is selected, our app displays a complete set of information about it including its past usage, reservations and diagnostic information.

In addition to checking availability of vehicles based on dates, our app provides for advanced search to narrow the scope based on things like type of vehicle, location of vehicle and level of autonomy.

The “My Reservations” tab shows a user’s upcoming vehicle reservations as well as enabling them to make and cancel reservations.

Our Autonomous Vehicle Fleet Connectivity App is written using the Angular web framework, obtaining information from Aptiv’s native servers. Communications are implemented using Microsoft Azure Services.
Auto-Owners Insurance
Jeffrey: Virtual Insurance Claim Advisor

Auto-Owners Insurance is a Fortune 500 company that provides automotive, home, life, and commercial insurance. Headquarters in Lansing, Michigan, Auto-Owners is represented by over 44,000 licensed insurance agents across 28 states, and provides insurance to nearly 3 million policyholders.

Every day, hundreds of insurance claims are filed with Auto-Owners through its independent agents. This process can be tedious for both policyholders and agents.

Our Jeffrey Virtual Insurance Claim Advisor system is a virtual claim assistant that automates the entire claim reporting process. Our mobile app, shown on the right, enables both agents and policyholders to file a claim quickly and efficiently.

Jeffrey engages in a dialogue with policyholders and agents to gather information required to file their claim through natural conversation. If necessary, Jeffrey prompts users to take photos, record videos or attach documents relevant to their claim.

After completing a dialogue with a user, Jeffrey automatically gathers the appropriate claim information and submits it to Auto-Owners.

Our companion web app enables agents and Auto-Owners associates to find and review claim information that is submitted through the mobile application.

Our Jeffrey Virtual Insurance Claim Advisor system features natural language processing, which is implemented using Google’s Dialogflow. A custom REST API, written in Kotlin, handles interactions between the applications and our MySQL database. Our web application is built using the React Javascript framework.
Artwork Example
Artwork Example

**The Capstone Experience**

**MSU Federal Credit Union**
Banking with Amazon’s Alexa and Apple’s Siri

Founded in 1937, Michigan State University Federal Credit Union offers financial services to Michigan State University and Oakland University faculty, staff, students, alumni association members and their families. With 28,000 members and over $1.3 billion in assets, MSUFCU is the largest university-based credit union in the world.

MSUFCU currently offers mobile banking apps on both Apple (iOS) and Google Android devices for members to access their funds and perform banking transactions at any time.

Our Banking with Amazon’s Alexa and Apple’s Siri system mainstream MSUFCU’s technological edge by expanding their banking offerings to voice-controlled smart devices such as Amazon Alexa-enabled devices, Apple Watch and Android Wear.

Voice-controlled technologies give MSUFCU members new ways to interact with their accounts, including accessing their account balance, transferring money and obtaining information about recent transactions. Members can request other information about MSUFCU such as branch hours, current loan rates and the location of the nearest ATM or Branch.

Our companion administrative web portal enables MSUFCU staff to manage the available information and services offered by these voice technologies. Frequently asked questions can be added to the apps in minutes to improve the user experience.

The Alexa skill is written in Python, Apple Watch in Swift and Android Wear in Java. All three interact a MSQL database through JSON. The administrative web portal is written in PHP.

---

*Michigan State University*

**Team Members (left to right):**
- Steven Jorgenson
- Sara VanDer Merriën, Michigan
- Kieran Hall
- Evan Decker, Michigan
- Will Bucklin
- Ethan Boyd
- Charlie Rent

**MSUFCU Project Apmers:**
- Samantha Ambrose
- East Lansing, Michigan
- April Clute
- East Lansing, Michigan
- Emily Feiner
- East Lansing, Michigan
- Cedric Lockwood
- East Lansing, Michigan
- Andy Lynch
- East Lansing, Michigan
- Sam Maxon
- East Lansing, Michigan
- Andy Mawell
- East Lansing, Michigan
Michigan State University Men’s Basketball
Spartan Basketball Player Timer

NCAA Division I basketball is very competitive. Although it may not be apparent to the casual observer, every detail of each game is carefully planned and scripted.

One aspect of a game plan is that of playing times. For each player, the coaches determine target times for how long he can play at a stretch, how long he needs to rest before playing again, and the total amount of time he should play in a game.

Developed with Coach Tom Izzo, our Spartan Basketball Player Timer is used by the basketball staff on the bench during the game.

When a player enters the game, his playing time is displayed with a solid green background. When his target playing time goes under two minutes, it is displayed in yellow. When the time goes below zero, it is displayed in red.

The color coding provides visual cues that can be seen by coaches at a distance. If there are many yellow or red boxes, coaches begin to plan substitutions.

A game summary for all the players can be displayed at any time whether the game clock is running or stopped.

Our software runs on a Microsoft Windows Tablet PC about the size of a traditional clipboard only slightly thicker. With no mouse or keyboard, all input is done with a pen.

Spartan Basketball Player Timer is written in Visual Basic. The underlying database is Microsoft Access.
Dow Chemical Company
Assist IT: Mobile IT Help Assistant

N.B. The format of the template has changed.
Dow Chemical Company
Assist IT: Mobile IT Help Assistant

Around for over 110 years, Dow Chemical Company is a company focused on innovation and providing solutions. This focus on innovation leads Dow to the commitment of improving products and methods as well as breaking the mold for years on end.

Dow consists of over 70,000 employees worldwide with approximately 30,000 of these employees being contractors. With almost half of their employees being contractors, a lot of the employees do not have the knowledge to know where to look for help with their IT problems. Dow wished to come up with a solution that is a one-stop-shop that would allow for their employees to easily access or find the IT information that they need to continue working.

Dow IT Assistant is a web based chatbot that brings all of the IT knowledge to one place in an intuitive way. The chatbot greets the user upon visiting the page and sees if it can assist you with your IT problems or needs. The IT assistant can be used either via a desktop or mobile web browser. For Dow employees whom have visual impairment, they are able to take full advantage of the chatbot by vocalizing to it about their problem and having it respond over the voice service.

Dow IT Assistant uses Microsoft Azure Services including LUIS, QnA Maker, Voice Services, and knowledge bases. The chatbot learns the service request information from interfacing with Dow’s large IT database. Hosted on Azure, the web application uses Microsoft .Net and Node.js.

Michigan State University
Team Members (left to right):
Brandon Brooks
Clinton Township, Michigan
Keaton Coffman
Jackson, Michigan
Cassie Thompson
Kalamazoo, Michigan
Charlie Benson
Lansing, Michigan

Dow
Project Sponsors
Kyle Alexander
Midland, Michigan
Marc Habermann
Midland, Michigan
Fareed Mohammed
Midland, Michigan
Matt Olmsted
Midland, Michigan
Dow Chemical Company
Assist IT: Mobile IT Help Assistant

With over a century of experience, Dow Chemical Company is changing the world through innovation by providing advancements like more drinkable water, more clean and affordable energy, and increasing food production.

Dow employs over 70,000 people worldwide, including some 30,000 of which are contractors. For many of them, information technology (IT) is central to their work. Providing IT support is crucial, but to do so for so many people in so many locations is a challenge.

Our Assist IT Mobile IT Help Assistant is a chatbot that brings all of Dow's IT knowledge to one place, providing a one-stop shop for resolving IT issues.

Our chatbot leverages natural language processing to engage with a Dow employee in a natural and intuitive way, handling both text and voice input.

When a user describes their IT problem, Assist IT either provides a solution by searching Dow's vast knowledge base of issues and solutions or it asks the user for more information.

Assist IT is a responsive web app so it can be used with any web browser on a desktop or on any mobile device. And, since it's web-based, it provides IT support at any time, from anywhere.

Our Assist IT Mobile IT Help Assistant uses a variety of Microsoft Azure Cloud Services including LUIS, QnA Maker and Voice Services. Our chatbot leverages Dow's extensive IT knowledgebase of issues and solutions. Hosted on Azure, Assist IT is implanted using Microsoft .Net and Node.js.

Michigan State University
Team Members (left to right)
Brandon Brooks
Clinton Township, Michigan
Keaton Coffman
Jackson, Michigan
Cassie Thompson
Kalamazoo, Michigan
Charlie Benson
Lansing, Michigan

Dow Project Sponsors
Kyle Alexander
Midland, Michigan
Marc Habermann
Midland, Michigan
Fareed Mohammed
Midland, Michigan
Matt Olmsted
Midland, Michigan
Dow Chemical Company

**IT Assistant**

With over a century of experience, Dow Chemical Company is changing the world through innovation by providing advancements like more drinkable water, more clean and affordable energy, and increasing food production.

Dow employs over 70,000 people worldwide, including some 30,000 of which are contractors. For many of them, information technology (IT) is central to their work. Providing IT support is crucial, but to do so for so many people in so many locations is a challenge.

Our **IT Assistant** is a chatbot that brings all of Dow’s IT knowledge to one place, providing a one-stop shop for resolving IT issues.

Our chatbot leverages natural language processing to engage with a Dow employee in a natural and intuitive way, handling both text and voice input.

When a user describes their IT problem, **IT Assistant** either provides a solution by searching Dow’s vast knowledge base of issues and solutions or it asks the user for more information.

**IT Assistant** is a responsive web app so it can be used with any web browser on a desktop or on any mobile device. And, since it’s web-based, it provides IT support at any time, from anywhere.

Our **IT Assistant** uses a variety of Microsoft Azure Cloud Services including LUIS, QnA Maker, and Visual Services. Our chatbot leverages Dow’s extensive IT Knowledge base of issues and solutions. Hosted on Azure, **IT Assistant** is implemented using Microsoft .Net and Node.js.

---

**Michigan State University**

*Team Members (left to right)*

- Brandon Brooks
- Clinton Township, Michigan

- Keaton Coffman
- Jackson, Michigan

- Cassie Thompson
- Kalamazoo, Michigan

- Charlie Benson
- Lansing, Michigan

**Dow**

*Project Sponsors*

- Kyle Alexander
  - Midland, Michigan

- Marc Habermann
  - Midland, Michigan

- Fareed Mohammed
  - Midland, Michigan

- Matt Olmsted
  - Midland, Michigan

---

*We are no longer using QnA*
Dow Chemical Company
IT Assistant

With over a century of experience, Dow Chemical Company is changing the world through innovation by providing advancements like more drinkable water, more clean and affordable energy, and increasing food production.

Dow employs over 70,000 people worldwide, including some 30,000 of which are contractors. For many of them, information technology (IT) is central to their work. Providing IT support is crucial, but to do so for so many people in so many locations is a challenge.

Our IT Assistant is a chatbot that brings all of Dow’s IT knowledge to one place, providing a one-stop shop for resolving IT issues.

Our chatbot leverages natural language processing to engage with a Dow employee in a natural and intuitive way, handling both text and voice input.

When a user describes their IT problem, IT Assistant either provides a solution by searching Dow’s vast knowledge base of issues and solutions or it asks the user for more information.

IT Assistant is a responsive web app so it can be used with any web browser on a desktop or on any mobile device. And, since it’s web-based, it provides IT support at any time, from anywhere.

Our IT Assistant uses a variety of Microsoft Azure Cloud Services including LUIS and Voice Services. Our chatbot leverages Dow’s extensive IT knowledge base of issues and solutions. Hosted on Azure, IT Assistant is implemented using React.js and C#.

Michigan State University
Team Members (left to right):
Brandon Brooks
Clinton Township, Michigan
Keaton Coffman
Jackson, Michigan
Cassie Thompson
Kalamazoo, Michigan
Charlie Benson
Lansing, Michigan

Dow
Project Sponsors
Kyle Alexander
Midland, Michigan
Marc Habermann
Midland, Michigan
Fareed Mohammed
Midland, Michigan
Matt Olmsted
Midland, Michigan
The Capstone Experience
Design Day Booklet Content

Dow Chemical Company
IT Assistant

With over a century of experience, Dow Chemical Company is changing the world through innovation by providing advancements like more drinkable water, more clean and affordable energy, and increasing food production.

Dow employs over 70,000 people worldwide, including some 30,000 of which are contractors. For many of them, information technology (IT) is central to their work. Providing IT support is crucial, but to do so for so many people in so many locations is a challenge.

Our IT Assistant is a chatbot that brings all of Dow's IT knowledge to one place, providing a one-stop shop for resolving IT issues.

Our chatbot leverages natural language processing to engage with a Dow employee in a natural and intuitive way, handling both text and voice input.

When a user describes their IT problem, IT Assistant either provides a solution by searching Dow's vast knowledge base of issues and solutions or it asks the user for more information.

IT Assistant is a responsive web app so it can be used with any web browser on a desktop or on any mobile device. And, since it's web-based, it provides IT support at any time, from anywhere.

Our IT Assistant uses a variety of Microsoft Azure Cloud Services including LUIS and Voice Services. Our chatbot leverages Dow's extensive IT knowledge base of issues and solutions. Hosted on Azure, IT Assistant is implemented using React.js and C#.

Michigan State University
Team Members (left to right)
Brandon Brooks
Clinton Township, Michigan
Keaton Coffman
Jackson, Michigan
Cassie Thompson
Kalamazoo, Michigan
Charlie Benson
Lansing, Michigan

Dow
Project Sponsors
Kyle Alexander
Midland, Michigan
Marc Habermann
Midland, Michigan
Fareed Mohammed
Midland, Michigan
Matt Olmstead
Midland, Michigan
# Design Day Writing Schedule

<table>
<thead>
<tr>
<th>Step</th>
<th>Weekday</th>
<th>Date</th>
<th>Task</th>
<th>Elapsed Days</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Monday</td>
<td>September 30</td>
<td>Dr. D. sends templates to teams.</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Sunday</td>
<td>October 6</td>
<td>Dr. D. receives first draft from teams by 11:59 p.m.</td>
<td>6</td>
</tr>
<tr>
<td>3</td>
<td>Monday</td>
<td>October 7</td>
<td>Dr. D. sends first draft by teams to TAs.</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>Monday</td>
<td>October 7</td>
<td>Dr. D. reviews artwork and sends artwork feedback to teams.</td>
<td>0</td>
</tr>
<tr>
<td>5</td>
<td>Monday</td>
<td>October 7</td>
<td>We review artwork during our all-hands meeting.</td>
<td>0</td>
</tr>
<tr>
<td>6</td>
<td>Tuesday</td>
<td>October 8</td>
<td>Dr. D. receives updated artwork from teams by 11:59 p.m.</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>Tuesday</td>
<td>October 8</td>
<td>Dr. D. receive drafts from TAs by 11:59 p.m.</td>
<td>0</td>
</tr>
<tr>
<td>8</td>
<td>Wednesday</td>
<td>October 9</td>
<td>Dr. D. sends TAs’ drafts to writer at 8:00 a.m.</td>
<td>1</td>
</tr>
<tr>
<td>9</td>
<td>Wednesday</td>
<td>October 9</td>
<td>We review drafts during our all-hands meeting.</td>
<td>0</td>
</tr>
<tr>
<td>10</td>
<td>Friday</td>
<td>October 11</td>
<td>Dr. D. receives draft from our writer by 8:00 a.m.</td>
<td>2</td>
</tr>
<tr>
<td>11</td>
<td>Friday</td>
<td>October 11</td>
<td>Dr. D. sends writer’s drafts to TAs.</td>
<td>0</td>
</tr>
<tr>
<td>12</td>
<td>Sunday</td>
<td>October 13</td>
<td>Dr. D. receives TAs’ drafts by 11:59 p.m.</td>
<td>2</td>
</tr>
<tr>
<td>13</td>
<td>Monday</td>
<td>October 14</td>
<td>Dr. D. sends drafts to teams.</td>
<td>1</td>
</tr>
<tr>
<td>14</td>
<td>Monday</td>
<td>October 14</td>
<td>We review drafts during our all-hands meeting.</td>
<td>0</td>
</tr>
<tr>
<td>15</td>
<td>Tuesday</td>
<td>October 15</td>
<td>Dr. D. receives final drafts from teams by 11:59 p.m.</td>
<td>1</td>
</tr>
<tr>
<td>16</td>
<td>Wednesday</td>
<td>October 16</td>
<td>We review final drafts during our all-hands meeting.</td>
<td>1</td>
</tr>
<tr>
<td>17</td>
<td>Thursday</td>
<td>October 17</td>
<td>TAs review final drafts.</td>
<td>1</td>
</tr>
<tr>
<td>18</td>
<td>Friday</td>
<td>October 18</td>
<td>Dr. D. submits assets to our graphic designer.</td>
<td>1</td>
</tr>
</tbody>
</table>
Submission

• READ Instructions Carefully
• Assets Folder
  ▪ Name: team-urban-science-design-day-booklet-page
  ▪ Contents
    o team-urban-science-design-day-booklet-page.docx
    o team-urban-science-artwork-1.png (Very High Resolution)
    o team-urban-science-artwork-2.png (Very High Resolution)
    o team-urban-science-artwork-3.png (Very High Resolution)
  ▪ Zipped
• Email
  ▪ Subject: Team Urban Science Design Day Booklet Project Page
  ▪ Body
    o Not Blank
    o Something Professional
  ▪ Attachment
    o Zipped Assets Folder
    o team-urban-science-design-day-booklet-page.zip
  ▪ Due 11:59 p.m., Sunday, October 6.