

EE / CprE / SE 491 – sddec18-12

360 Webcams for Zoos and Aquariums

Week 01 Report: 2018.01.08 - 2018.01.27

General Information

Client: True 360 (Christopher James)

Faculty Advisor: Dr. Henry Duwe

Team Members:

<u>Name</u>	<u>Primary Role</u>	<u>Secondary Role(s)</u>
Nathan Cool	Front-End Engineer	Project Manager, Webmaster
Zach Newton	Front-End Engineer	Scrum Master, QA
Ian Jamieson	Back-End Engineer	Graphics Lead
Alan Negrete	Back-End/Database Engineer	Scribe, QA
Tarek (TJ) Yacoub	Embedded Engineer	Communication Lead, QA
Hosam (Sam) Abdeltawab	Embedded Engineer	Software Architect

Weekly Summary

This is the first weekly report for team sddec18-12, encapsulating our accomplishments during the first three weeks of EE/CprE/SE 491. By the end of the first week, we were approved to begin working with True 360—an Ames-based and student-founded startup—on their project, “360 Webcams for Zoos and Aquariums.” The second week consisted of acquainting ourselves with one another, meeting with our client for the first time, and learning more about the high-level details and requirements of our project. By the end of week three (the end of this report’s coverage), we had met with both our client (multiple times) and our advisor (once). As of now, our tool workflow and weekly meeting schedule are solidified (see next section) and we are ready to dive into the details of our project.

Past Week Accomplishments

Group:

- Finalized group/client/advisor meeting schedule for the semester:
 - **Mondays from 13:15 to 14:45 (90 minutes) @ TBD**
 - Note: This is our weekly planning meeting.
 - Note: Location TBD for regular change of scenery.
 - **Thursdays from 15:30 to 16:30 (60 minutes) @ Coover 3138**
 - Note: This meeting is for mid-week progress updates, addressing group and individual impediments, and providing our client and advisor with an informal presentation of our progress.
 - Note: Location RESERVED so our client and advisor have a consistent date/time/location to meet with us.
- Assigned technical and non-technical roles:
 - Nathan
 - Technical: Front-End Engineer
 - Non-Technical: Project Manager, Webmaster
 - Zach
 - Technical: Front-End Engineer
 - Non-Technical: Scrum Master, QA
 - Ian
 - Technical: Back-End Engineer
 - Non-Technical: Graphics Lead
 - Alan
 - Technical: Back-End/Database Engineer
 - Non-Technical: Scribe, QA
 - TJ
 - Technical: Embedded Engineer
 - Non-Technical: Communications Lead, QA
 - Sam
 - Technical: Embedded Engineer
 - Non-Technical: Software Architect

Nathan:

- Initial Setup
 - Created sddec18-12 Slack team (added all team members, organized channels, tweaked settings).
 - Created and organized sddec18-12 master Google Drive folder with all course documents and a custom template for weekly reports.
- Logistics
 - Facilitated the scheduling of all group, group+client, and group+client+advisor meetings.
 - Reserved Coover 3138 for our weekly (Thursday) meetings.
- Communication
 - Facilitated initial communications with our client and advisor, so as to update them on our progress and include them in the process of solidifying our weekly meeting schedule.
- Technical
 - Interacted with the Insta360 camera, which was provided by our client, in order to discover both its capabilities and its limitations.
 - Collected biographies and photos of all team members and integrated them into our team's website.
 - <https://sddec18-12.sd.ece.iastate.edu/team.html>

Zach:

- Initial Repository Setup
 - Reported member adding script bug to Dr. Zambreno.
 - Set merge request guidelines to only allow merges with 3 approvals.
 - Added READMEs, Merge Request Templates, and Issue Templates.
 - Made issue boards and labels.
 - Started Wiki pages for broader group information (Roles, Meetings, etc.).

Ian:

- Technical Research
 - Looked into other options besides the camera the client already has.
 - Spoke with a few employees from Garmin to better understand the Garmin Virb camera.
 - Compared Garmin Virb with other options.
- Communication
 - Spoke with the client to determine their wants and needs for the camera.

Alan:

- Technical Research
 - Conducted research on alternatives for the InstaPro 360, which resulted in a very limited category around that price range with live capabilities. Could not find any other new alternatives to the couple the team already found.
 - Conducted research on different price point alternatives to bring to our client as a possibility of using less quality cameras, but more of them thus providing the opportunity of monitoring a space from more angles.
 - Contacted ALLie - Waiting on response about SDK.
 - Contacted Taradek- They provide a live-streaming solution for cameras without live streaming capabilities. Waiting on response about SDK.

TJ:

- Research
 - Emailed Garmin, Orah, and Ricoh to see if they have any products that meet our requirements. I have not heard back from any of them.
- Technical
 - Laid out our requirements for the camera. Ideally the camera should have the following accessible through an API or a SDK:
 - Start/Stop recording
 - Specify RTMP (real time messaging protocol) url.
 - Change video settings.
 - Take pictures.

Sam:

- Research
 - Contacted Insta360 in order to gain more information on how our team could interface with the camera; unfortunately, the company are currently developing the camera's SDK. Therefore, decisions have been made to change the camera type.
 - Researched types of suitable cameras within our budget reach. Candidates found were Orah, Ricoh, & Garmin.
- Technical
 - Started getting familiar with Raspberry pi 3 in order to bolster my information as well as my skills in embedded systems, and in order to get familiar with the technology since it was needed in order to monitor the heat and sensors on the camera.

Recent Group/Client/Advisor Meetings

<u>Date, Time, Location</u>	<u>Participants</u>	<u>Details</u>
2018.01.12, 16:00 - 17:00, Library 306E	Team	First team meeting — introductions, discuss meeting schedule, set up tool workflow
2018.01.15, 13:00 - 14:00, Coover 1016	Team + Client	First team + client meeting — introductions, client project presentation, Q&A session
2018.01.18, 16:00 - 17:00, Library 306E	Team + Client	Planning — continued discussion of project details and requirements
2018.01.22, 11:00 - 12:00, Library 306E	Team (Partial) + Client	Agile process planning — discuss with client our thoughts on using Agile (Scrum) to facilitate project processes
2018.01.22, 13:15 - 14:45, Library 306E	Team + Client + Advisor	First meeting under solidified schedule — brief introductions and continued planning
2018.01.25, 15:30 - 16:30, Coover 3138	Team + Client	First live interaction with Insta360 camera, discussion of its feasibility, and collective decision to pursue superior camera options

Pending Issues

Nathan:

- Over the past few weeks, our discussion of the project system and its functions have been from a high-level perspective. As a team, we need to collaborate with our client in order to better define lower-level technical requirements for our project. In doing so, we will be able to work out implementation tasks and plug them into Gitlab Issues so we can begin designing, developing, etc.

Zach:

- Our clients are not entirely sure what they need/want. This allows us a lot of room for input on the direction of the project. As a team, we need to collaborate with the client to better define a direction for the project. Then, we can decide on the best front-end technologies for the job.

Ian:

- One of the biggest underlying issues is the lack of API for 360 cameras. The camera that the client has does not have an API, which makes it very difficult to implement the project. That being said, there are other options that have better API's and are from more reputable companies. We're going to continue discussing options and hopefully have a product selected before the end of next week at the latest.

Alan:

- There wasn't enough technical research on our client's part, which has been leading to confusion in the team about what's expected to be delivered as well as us having to backtrack on the project to research alternatives to the camera. On the plus side, we might be able to find something that works much better from a developer perspective, the downside is that it's setting is back on time for design & development. We're all researching different approaches to this, and will be bringing up our solutions to our client to get back on track.

TJ:

- Currently looking for a camera that will work for our project. The camera that our client provided will not be suitable for the project if we want to be able to control a collection of 360 cameras through a Web Application.

Sam:

- In the process of learning Raspberry pi 3, and getting familiar with the technology.
- In the process of looking for a suitable camera (with the team) for our project.
- In the process of learning new technology in embedded systems.
- In the process of reviewing the rules, regulations, & in the software architecturing field in order to maintain a certain level professional level in writing and designing reports as well as software diagrams.

Individual Contributions

<u>Name</u>	<u>Individual Contributions</u>	<u>Hours This Week</u>	<u>Total Hours</u>
Nathan Cool	SEE PAST WEEK ACCOMPLISHMENTS	25	25
Zach Newton		15	15
Ian Jamieson		15	15
Alan Negrete		15	15
Tarek (TJ) Yacoub		15	15
Hosam (Sam) Abdeltawab		15	15

Note: In this report, the “Hours This Week” column accounts for time contributions during the first three weeks of the semester rather than one week at a time, which will be the case going forward (unless otherwise specified).

Upcoming Plans

Nathan: Over the next week, I will be assisting my fellow team members in the process of researching, selecting, and testing (once purchased) the ideal camera for our project, whether it be the Insta360 Pro we currently have or something entirely new. I will also be assisting Zach in the development of front-end design documentation. Finally, I will continue adding any necessary information to our team website for our client and advisor to access.

Zach: This next week I will be joining the team discussion on camera choices. Also, I hope to get a more solidified plan for the user facing side of our product (admin) so that I can begin research on the best technologies for client side development.

Ian: My plans are fairly straight forward this week. I’ll be continuing the research phase of selecting a camera and hopefully better understanding the limitations of all our options.

Alan: Continue doing research on alternatives, as this is a priority to even get started with the project. Hopefully I will receive responses from companies so & I will be able to bring up their responses.

TJ: Depending on other team members research outcome, i will either call the companies that have not replied yet, or start researching suggested camera’s documentation to further vet new cameras.

Sam: Basically, if we decided on a camera, I am going to start testing the hardware all together, and try to interface & be familiar with the camera as soon as possible. Otherwise, I am going to continue researching cameras, and try to see if we have any hard or egregious tasks and try to break it down and make it tolerant for us.