AARS Team Project Plan

Introduction:

This is a document that will provide all necessary information regarding what will happen during these two weeks. Everything in this document will be organized by sections of who needs to do what and what activity it is; there will also be a section based on whole group activities. I also recommend reading the whole document even if it's not your part, just so you know what everyone is up to. Any questions can be made directly to the team leader or any other members. Thank you (:

Sections that are discussed in this document include:

Weekly journal & Kanban [All of us]

Team meeting notes [Phoenix]

Video [Phoenix, Jimmy]

Pictures [Surabhi, Jimmy]

Research [Surabhi, Phoenix]

Website [All of us (design), Jimmy (main dev)]

Database development [Kevin, Jimmy]

Written report [All of us]

Class presentation [All of us]

Team roles:

Surabhi - Researcher

Phoenix - Notetaker

Kevin - Lead Programmer

Jimmy - Team manager, Programmer

Due Dates & Deadlines:

There have not been any due dates or deadlines determined as a group. As the team leader, I have made the following due dates that will ensure we finish the project on time. These due dates and deadlines may be adjusted depending on work completed and certain requirements that we may not have been fully aware of. These due dates/deadlines are

organized by weeks starting Monday April 13, 2020 and ending Monday April 27, 2020. Most stuff is deadlined by Friday April 24, 2020

Week 1 (Due):

Database code

Research

Pictures

Video

Written report (Draft)

Week 2 (Due):

Website

Written report (Final)

Presentation (Plan/Final)

Both Weeks (Deadline):

Team meeting notes

Kanban

Weekly log

Weekly Journal & Kanban (Everyone):

This section counts two activities but mainly because they are interrelated. The weekly journal will consist of us sharing our personal remarks of each week. This will be submitted by doing a reply on the discussion thread labeled "Weekly Journal / Kanban." You can write anything from what you did the past week or what you think should happen the next week (if applicable). This will be like a personal reflection on a weekly basis, personal feelings are also welcomed, no matter if they are positive or negative (be true to yourself).

Kanban has also been implemented through the Agile methodology. This methodology will enable the team to better communicate ourselves on knowing what we need to do. The Kanban board has been shared to each of you by email. If you did not receive an email or can't find it let me know (by phone or by email) and I will give u access to it. All instructions are available on the Kanban board all the way to the right.

Summary:

-Write a reflection on thread labeled "Weekly Journal/Kanban"

-Update Kanban board with new information

Team Meeting Notes (Phoenix):

The team meeting notes will be used to record everything we have talked about on a meeting. This can include any plans, topics, or future things planed in that meeting. The notes don't have to be extensive but brief. A paragraph (of 5 sentences or more) is acceptable for this task. In addition, a template has been made for you (as previously stated) if you need some help. That template only includes questions you may answer as the team meeting notes. This activity should be submitted via the "Team Meeting Notes" thread on the discussions as a reply. If you (Phoenix) are absent on a team meeting, this task should be handed down to the team leader or researcher.

Possible questions that can fulfill notes requirement:

Who was present at the meeting?

What did we talk about (summary)?

Were any proposals made?

What will we talk about next meeting?

Summary:

-Submit team notes as a reply via "Team Meeting Notes" thread every time there is a team meeting

Video (Phoenix & Jimmy):

There have not been any requirements for a video; in turn, I have drafted some requirements that should fulfill the video task. The video will be made by both of us (Phoenix and Jimmy) but other are also encouraged to participate on planning and development of the video. The video will be a promotional advertisement of our product (project AARS). The video will also try to outline all the work we have put into this project and give an aspect to the team members. Our project will not have any hardware components to it, so we must improvise by showing the theoretical look of the hardware piece as well as displaying a demo of the project. Additionally, each of us (all the project AARS team members) can record ourselves with our role and introducing what we helped on [I will need approval from everyone first].

We can start drafting for the video on Wednesday by discussing with everyone on this simple manner. Once Kevin and I (Jimmy) finish the database code and when I (Jimmy) finish the website, the demo can be created. I can record the demo part as I will be more experienced with the workings of the project, while you (Phoenix) can work on recording on the theoretical look of the device (using some of the images Surabhi and I create). Questions? Email or text me.

Summary:

-Video will have a promotional theme (of product and team)

-Show theoretical product as well as a demo of the product in video

-Requires everyone's input on what else to include on video

-Submit this via a reply on "Video" thread

Pictures (Surabhi & Jimmy):

Our job will be to create and find pictures that we will use on all our project documents. Such documents will include the presentation, written report, website, and even the video. We will have to create the theoretical look of the hardware device (Raspberry Pi along with the RFID reader). I can add models and graphs based on the database and code development. Additionally, we may have to research to make something possible (such as using an image program such as Photoshop or GIMP) in which I would ask for us to input that research on the "Research" discussion thread and submit it via a reply. I intend to finish all of this by week 1. I will require opinions from everyone on what we should add to our image collection and would also like to receive input from what images different tasks might require. This task shall be completed by replying to the "Images" thread of discussions via a reply with the image(s). Any questions regarding this task shall be asked to me (Jimmy) via email or text.

Summary:

-Create or find images that represent a theoretical look of the product

-Create or find images that everyone else will need for other tasks (this requires everyone's input)

-Submit this via a reply on "Images" thread

Research (Surabhi & Phoenix):

This task will be straight forward and will be relied on by other tasks (such as written report or presentation just to name a few). This task will require you to research information that relates to the project. The information that can be research includes and is not limited to

how to wire up an RFID sensor into Raspberry Pi, how to use GIMP to create graphics, how to use a GitHub repository, how does webhosting work. Anything that you search up on the internet that relates to the process on finishing the project is allowed and encouraged. After the second week, we can compile this research and include it on our written report. Research can be contributed by anyone on the group. Please submit any research material under "Research" thread as a reply. Both of you (Surabhi & Phoenix) are the people in charge of producing most of the research. If you all need help or don't know what else to research on please let the team leader know (Jimmy) and he will assist you. Any questions can be forwarded to the team leader via email or text.

Summary:

-Research about anything that relates to the project

-Anyone can contribute to the research

-Research done here will be compiled for the written report

Website (Jimmy & everyone):

I will be creating the website which will try to show how the product should work in theory. It will also include a demo on which people can use our website to test the product. The website will also outline how we have been working as a group in order to highlight and possibly gain more collaboration points (yes, everything I have planned has a purpose). I will be creating the website mostly by myself but all of you people can still help me. I will need most of the help with the design part of the website. I might need more input on what you guys would like me to put into the website. This is the group's website so of course; I will need all of you to contribute some ideas for it. I have created a repository on GitHub where you guys can find the code and collaborate with me. You guys can also request the code of you find GitHub too hard. All ideas can be inputted to the "Website" thread of discussions as a reply. We will use HTML, CSS, and JavaScript for this project. t

Summary:

-Website will include different things; it will be dynamic

-I can code everything but I will need help with the design part

-Anyone can contribute; code will be on GitHub or can be requested

Database Code (Kevin & Jimmy)

Yes, in case you were wondering, we will create the code for the databases. We will finish them in less than a week, so it will be a lot of work. I have created a theoretical model for the databases themselves. We will not build all databases; we will only build it for one Raspberry Pi. The databases that will get build are: 1 classroom DB, 1 log DB, as well as 1 master DB (DB == Database). Anyone can contribute to this, but I recommend that if your programming ability is low you go to the website project (we will not just do the website, we will also do backend stuff that connects to the DBs). The databases will be created in Python or JavaScript, which ever you prefer. The different databases can be separated by different file names (which can then be linked to each other) or by containing them under different functions. I will use these databases to link the to the website and create the dashboard. If you decide to go with Python, I will have to translate some of the data into JavaScript, just keep that in mind. Additionally, I highly encourage the use of JSON for data managing. It works well with both Python (Py) and JavaScript (JS), it will enable an easier transition from Py to JS. I do not know JSON so it will be a learning experience for both of us.
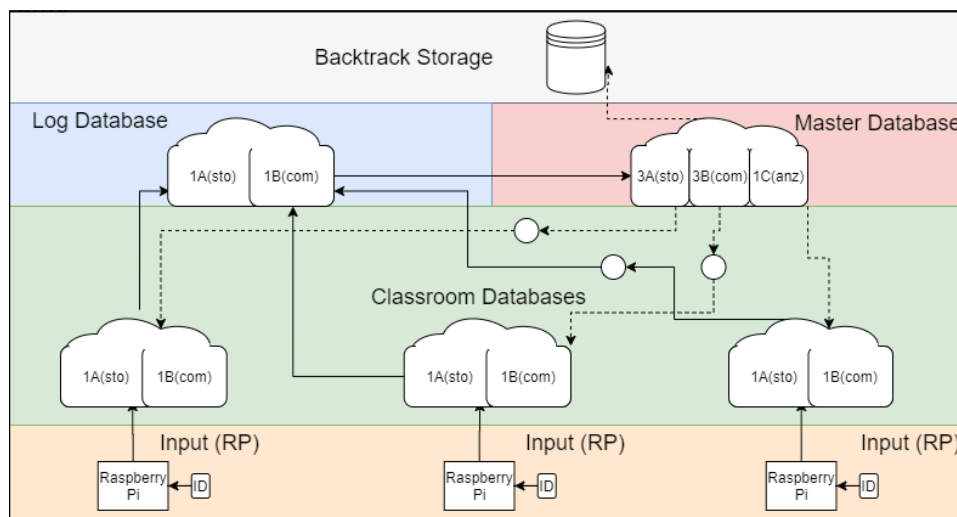
This is the model that is planned for future implementation of AARS. AARS is a system of multiple RPs, not a singular product. As I stated above, we will only build one of each website and we will exclude backtrack storage (more why below). This model will be explained below:

Collection of Input:

The collection of input will happen by having the ID (RFID) card be near the RFID sensor. The Raspberry Pi (RP) will then store this information and upload it to the classroom DB. The information that will be collected will include card ID, time it was scanned (metadata), and location (of RP).

Classroom DB:

1A (Store):

1A shall be broken into two parts, initial storage and final storage

Initial storage will compare with data from 1B (compare) to get student ID info of student

Final storage will store all final comparisons and send it to 2A

Received data from 3B will be stored here

1B (Compare):

Will keep info and compare IDs of cards and names (given to the card ID)

Any card ID that is not supposed to be in the class will be flagged.

Flag can be as an object with a Boolean value of true

Infor that is kept will include name, grade, and school ID number

Classroom DB is the very minimum that needs to be built!

Log DB:

2A (Store):

This will only include a final storage, unlike 1A. The final storage will include information of all classroom DBs; only information from 1A will be here. This will be then be compared 2B.

Information sent includes name, grade, presence status (absent, present, late, etc.), location metadata, and school ID number

2B (Compare):

This will have all student ID numbers (not card IDs) and a class schedule of where they should be at a certain time. If any ID numbers are not in the correct location as their schedule indicates is will then be flagged and sent to 3B.

After school session is ended (at around 5 pm), all info on 2A will be forwarded to 3A.

Master DB:

3A (Store):

This will have both initial and final storage, just like 1A

Initial storage will have all those IDs that have been flagged. It will be stored for 3 minutes and then forwarded to 3B

Final storage will have info of all A sections of all Log DBs. It will be stored for a maximum of 1 cycle (24 hours). This info may be forwarded to 1C where it will be analyzed. This info may also be pushed to Backtrack Storage without going to 1C.

After 1 cycle, all data will be deleted from here if it is not pushed to Backtrack storage.

3B (Compare):

The job of this is only to forward flagged names to the appropriate location of classroom databases. It will be direct without intervention of log DB and sent to 1A final storage part of classroom DBs.

This is the main communication with all other DBs if desired; this is an optional feature which will be fully compatible (not included in demo).

1C (Analyze):

This is the part where one can analyze all data. Additional software can be made to work with this part of the database and can give more info to school systems.

Info analyzed here may also be pushed to Backtrack DB.

This part has not been made active in demo and is optional

Backtrack Storage:

This is only theoretical and not yet implemented nor ready to be implemented yet. This can be cloud storage or a local server. All info will be stored here until there is no more storage space. This storage will be used to keep logs of every cycle within the AARS system. It will be available within future versions of the revised AARS system.

Quick notes:

All databases have a push & pull mechanism

Pull part has a dashboard (except Backtrack storage)

All dashboards will get info from final storage parts of A DBs.

All pushes are made clockwise (shown in diagram)

JSON is highly encouraged for data

DB environment will be local on the web server as a demo

I still do not currently have a plan on how the dashboard will look like on the website, but I can still figure it out with all the information that will be collected. The DBs will need the following data in them:

Input from ID card:

ID from card

//Location that was scanned (location must be a string; a constant variable number must be associated with it)

Time it was scanned (will used to be marked late or on-time)//

/*This info will be forwarded to classroom DB*/

// means this can be done on classroom DB

Classroom DB:

List of student ID numbers that correlate with a card ID (ID numbers will be locally stored). These student ID numbers will include:

Name

Grade

Card ID info

Status of wrong location (forwarded from Master DB)

All info forwarded from input of card will go here too (except card ID number)

/*This info will be forwarded to Log DB*/

Log DB:

List of student ID numbers that correlate to their student schedule (ID numbers are also locally stored here). The schedule will include:

Name & Grade (from student ID numbers)

Class periods and room number (which will have a location number from RP or classroom DB)

Time each period starts

Flagged students not in correct location

/*This info will be forwarded to Master DB*/

Master DB:

    All information forwarded from Log DB

    Will forward info to classroom DB based on location for those students that are on another location

    Analyze software (<u>do not include on demo</u>)

    /*This info will be forwarded to Backtrack storage*/

Backtrack Storage:

    All info that has been collected from Master DB will be stored here forever

    <u>Do not build this part; only for future iterations of AARS</u>

We can still voice chat if you need more clarification on what we are doing. Do this part as best as you can. I can fix the code if I believe something does not fit or go well. I will be working on other things before I get into this. Please work on it, I will not let you do this alone anyways. Please.

Summary:

    -AARS environment consists of 3 databases that need to be built

    -Choose either Python or JavaScript for the project. JSON is also a must for controlling data (both languages are compatible with JSON)

    -Databases can be separated using different files linked to each other or one file under different functions

    -Read description under diagram for a description on how the AARS process will work

    -Read bottom description for what information we will need to store on each database

    -Please ask me questions. You will start first, and I will then continue and help you

    -GitHub implementation is preferred but not required

    -We have 5 days maximum to finish this whole project

    -Please work on it, if you don't work on it once I finish other tasks, I will be disappointed

Written Report (Everyone):

The written report's due date is on Sunday April 19, 2020. We need to write about information which has not been produced yet. In order to do this draft, we need to work as hard as we can. I have proposed to do something special which will show our collaboration as a team and will improve our team culture (yes, we have one). Anyways, everyone will need to participate. This written report is just like a description of the project and how the process was; it is just a simple reflection. It's basically an extended project proposal. The required stuff that will be on our written report will include:

Project Title

Team Description (Every Member)

Project Purpose

Project Product feature

Project Materials details including components, tools and software if any so that people can acquire to recreate the project

Project Development History (5 points) with pictures/videos/drawings (so that people can follow your instruction to recreate the project

Project Resources (GitHub, contact info, etc)

Project Product with pictures/videos/examples

Lesson Learned (5 points)

Future Plan

Everyone will contribute to this and write their own personal reflection. I can do everything that that deals with project specifics, other than that, everyone must write something.

Summary:

-Everyone must write something

-Requirements of written report are above

-This is due on Sunday (at least the draft)

-Every task will be included on written report

Class Presentation (Everyone):

There will be a class presentation. It might be online, but we must still present our project to everyone. I don't know how shy all of you might be but remember that you will also have to speak and say something. You are part of the team; we will not leave you out. I can explain everything that deals with project specifics, all of you can explain what you specifically did. Questions may arise from other people or our Professor; in turn, please understand the majority of what the AARS project deals with. Our presentation will basically be the written report, you can, however, add in more stuff if you feel comfortable about it. The purpose of our presentation is just to show what we did. If you are shy, I have some tips for you:

-Don't think this is graded (even if it is)

-Be honest with yourself and everyone else (if you do not know the answer to a question simply say, "I don't know", it's okay)

-Imagine you are talking to the group and no one else

-BE YOURSELF (not shy of course, he he)

We can also do a rehearsal if you all do not feel comfortable speaking in front of a group or you are just confused about the whole ordeal. It's okay (:

Summary:

-We will base our presentation from the written report

-Everyone must contribute to the presentation; you are in the team for a reason

-Be yourself, doesn't matter if u make a mistake

-Rehearsal will be possible before we do this

Conclusion:

This is a resource to help you know what to do. This was never required and did this from my own interest. This took me time, so at the very least I ask you to read your parts. Any questions that you may have about the AARS project or any of the current tasks may be forwarded to me (Jimmy) via school email (blackboard only), text (phone number), or discord.

Thank you and I hope you guys find this useful (: