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Requirements Document Structure

1. Executive Summary:

Our goal for this project is to create a dashboard for our sponsor Spenser Morgan at Hanover County EMS. Data is manually compiled into the dashboard to generate reports and data analysis to help Hanover EMS respond to emergencies and meet government regulations. Currently this process is done manually and it is our goal to automate this process. The approach to this project is to first go through collaborative planning stages, then create the dashboard through the agile development process. The dashboard we make will analyze the data from the previous month and output a deliverable that works, looks clean, and meets the national and county standards. After we complete the dashboard we will develop technology to use spatial databases to give the county more data analytics. We will focus on having good documentation so that our project can be sustainable and understood by the staff at Hanover EMS and so we can show the enhancements we made to the dashboard. Our project should also maintain backwards compatibility.

2. Introduction

a. Purpose:

To create a revamped dashboard for Hanover EMS. (Look into other counties data to look at examples of what other departments dashboards and try to recreate that. We will take datasets and be able to represent the info into spatial data/GIS form/ArcGIS). Data cleanup currently takes 3 hours to complete a dashboard... our goal is to be able to reduce this time and not waste time crunching numbers. This projects goal will be to help public safety and potentially help other counties as well (besides Hanover EMS with our product). Currently there are loads of Excel documents that are used by Spenser. This is used to manually compile and generate the data for the reports/analytics of the dashboard.

b. Background:

There are 16 Hanover Fire/EMS stations, spread across a 400 square miles area. Hanover County has a combination system that deals with a team of career and volunteer emergency responders, who work day to day together. Their vision is to be able to be a high performance emergency response system that meets the requirements by the government and county regulations. Hanover County deals with emergency, accidental, natural and/or manmade situations. Their mission is “to serve people and protect lives and property through the provision of professional fire, rescue and emergency medical services, 24 hours a day.”

Spenser Morgan is our main contact for Hanover EMS. Spenser deals with most tech, data systems, and he needs to report all EMS incidents and Fire incidents to the government. He also deals with hardware (last year they saved over a million dollars for data collection roles). His team is also responsible for drone program. Jethro Piland is main chief for the Fire Department. Was speaking to one of his neighbors, and got into the VCU engineering department and deciding that they needed a EMS dashboards to possibly make it more automated.

There is also Chief Anderson, who is Spenser’s direct report, he is the assistant chief of community risk reduction, charge of IT, functions as the guy of IT/Fire Marshal's office, public info (little bit of everything). Another person from Hanover is Eddie Buchanan. Who is the assistant chief of administration, looks over finances, and charge of HR. There is a training division under his division which deals with teaching 500 students a year.

c. Requirements/Scope:

- Documentation
    - This is going to be the number one priority. In terms of code, updates, and anything that will deal with users using product. Code especially must be thoroughly documented so that Spenser can understand it despite his lack of coding experience

        - The reason for this is so then everything can be considered sustainable and can be understood by staff and especially Spenser.
    - Maintain backwards compatibility
        - This is a high level requirement.
    - Portion of the deliverable has to be similar/look like the present deliverable that is created every month (the dashboard).
        - Better to have a more complex deliverable that can then be (automatically) simplified down to look like current deliverable?
    - Come up with creative ways to display data that we incorporate/work with
    - Be able to show/present what was developed, besides updating the dashboard process
        - Show new tech/enhancements we added to the 'old version' of the dashboard
        - This is also talking about the dealings with spatial databases and map layouts that we can work on, after the dashboard is complete
    - Every (beginning of a) month the new dashboard should be able show what happened the previous month by taking a snapshot of the information/data that was inputted into the system
        - This dashboard needs to be presentable for the County Administrator: Rhu Harris
    - The dashboard needs to adhere to national/county standards (based on NFPA standards)
    - The presentable dashboard needs to be clean
        - Look at the old example that was shown to us on the county's SharePoint (example)

3. Discussion

a. Approach

1. Start with analyzing the problem (dashboard)
2. Plan how to make dashboard cumulate all of the data
3. Plan how to output dashboard data without using excel
4. Implement dashboard simplicity (simplify dashboard?)
5. Implement dashboard cumulation of data
6. Implement dashboard output of analytics
7. Ensure that it takes less time, and is 'easier' to use new dashboard to accumulate all data for the month
8. Start with analyzing the problem (spatial database problems)
9. Plan how to set up and work with the new technology for spatial databases (this is if the dashboard is done)
10. Implement plan (this is if the dashboard is done)
11. Review the work done is correct and done well (this is if the dashboard is done)

b. Result

- Working dashboard
- Working spatial database/GIS entries/work is presented correctly (this is if the dashboard is done)

c. Statement of Work

For the planning stages we will heavily rely on group development and collaboration. This will help us understand our plans and goals, and from then we can move onto dealing with our agile development process. We will have to deal with a lot of new material, dealing with each other, handling issues, and continuing to show progress through all troubles. The way we will be developing is through an **agile** developmental process. We will always have a running master (on GitHub), and we will use the method of XP to help our iterations and when we have to crunch in work for due dates (that we set for ourselves) Everyone will have to be on the same page, even if people are falling behind... (due to schedules); we have to be able to pick up slack and deal with what we have got going for us.

4. Resources

a. Personnel:

- Ibrahim Rahman (Project Member)
- Andrew Greenwood (Project Member)
- Daniel Lenton (Project Member)
- John Leonard (Mentor)
- Spenser Morgan (Sponsor)
- Rhu Harris (County Administrator: Person who will check dashboard)

b. Facilities and Equipment

- Hanover County EMS
- Virginia Commonwealth University

5. Cost

a. Expenses: None as of yet.

b. Time: This will depend on how much we can get done for our first deliverable. Which should be very manageable, and be done by the end of the first term/beginning of Spring Term. After this, we plan to work on their spatial databases and help with setting up/building on their new tech to help show more analytics.

6. Conclusion

a. Summary

The way we will tackle this project is by separating the problems in two sets. We will have a dashboard project, and a spatial database project. First thing first is that we need to get the dashboard complete, accurate, and make sure that crunching numbers is not a tedious job and very much automated. This project will be done through the agile development methodology. After this project is finished, and reviewed by our sponsor (Spenser Morgan) we will start to work on the second project: spatial databases. This project will be done by learning new technology and ideas and help create a GIS that is useful for Hanover County. We will also focus on having good documentation so that our project can be sustainable and understood by the staff at Hanover EMS. We will show/present the enhancements we made to the dashboard, and to the tech that is already setup for the GIS/spatial databases to give good analytics. Our project should also maintain backwards compatibility.

b. Contacts

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