F21 ENGR 481, Team 03: ***Stakeholder Requirements***
2021-09-21 (Tuesday)

ID	WBS	Nickname	Name	Description	Rationale	Originator	Priority
1	R.1	Stakeholder Requirements	The solution shall address stakeholder requirements.	The stakeholder requirements as outlined by our client and academic department will be addressed at the beginning of the project through Decision Gate01	By creating a list of stakeholder requirements, Team 03 will meet the needs of the stakeholder by following the systems engineering process. Through each development phase (behavioral, operational, functional/architecture) Team03 will constantly refer to the stakeholder requirements and verify that they have been met.	Team	1
2	R.1.1	Client Requirements	The solution shall address client stakeholder requirements.	The stakeholder requirements as outlined by our client will be addressed at the beginning of the project through Decision Gate01	By creating a list of stakeholder requirements, Team 03 will meet the needs of the stakeholder by following the systems engineering process. Through each development phase (behavioral, operational, functional/architecture) Team03 will constantly refer to the stakeholder requirements and verify that they have been met.	Client	1
3	R.1.1.1	Performance Metric Data IN, Summary Report OUT	The solution shall take system behavior metrics in and generate a summary report of system health out.	Through automation, the collection of DATA metrics, reporting and alerting are critical to easily validate issues, raise variances, and generate fixes which will be deployed to the system hardware and software to improve overall functionality.	This aligns with the project outcome: to focus on collecting Internet of Things through communication metrics and will be important in defining the system's cadence in all areas.	Bruce Stansell	1

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4	R.1.1.2	Prognostic Testing Vision	The solution shall enable the client to serve customers desiring IoT prognostic testing.	IOT prognosis testing consists of receiving expected communication between the product and (client, engineers, customer) and highlighting areas of concern that require analysis/diagnosis.	The problem with monitoring IOT based applications is that monitoring thousands of devices requires regular communication and analysis from all the devices. This is difficult to perform without applying industrial data analytic solutions such as Microsoft Power BI and ELK Stack.	Bruce Stansell	1
5	R.1.1.3	Non-Ownership	The solution shall not be owned by any one entity, company, or person.	Owned in this sense is referring to private ownership of a software/hardware developed program, database, or intellectual property as agreed upon with the client.	This eliminates any binding characteristic felt by the client/user by releasing all intellectual property on an open-source platform.	Bruce Stansell	3
6	R.1.1.4	Build on the Shoulders of Giants	The solution shall incorporate tools rather than "rebuilding" the wheel where possible and efficient.	The tools used here are Microsoft Power BI and ELK stack to ingest CSV and log data files.	Rebuilding the wheel would consist of using a software/data analytics approach that is not used by the corporation or offered through Liberty University's Office 365 products. Inspiration for this project is derived from "Nordic Thingy: 91 Prototyping platform" and Twisthink- a strategies and Engineering corporation used to develop business strategies for engineering design concepts.	Bruce Stansell	2

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7	R.1.1.5	Vernacular of normal/abnormal	The solution shall designate English vernacular for describing normal / deviation from normal with method to international involvement (such as iconic representations)	In connection with a defined list of common terminology, this project will use commonly used vernacular that will be understood by engineers, clients, and customers. The vernacular will be in line with the ASPE and IEEE formatting and will give a clear description of the products requirements.	This is to align the system requirement for "defining a set of terminology" with the stakeholder requirement to implement it to the product.	Bruce Stansell	2
8	R.1.1.6	Method for cataloging system components and associated events	The solution shall have an open format for cataloging system components and associated events. If one exists, the team may leverage it. If an open-source solution does not exist, the team shall define it.	A method for cataloging these system components is still being defined and shall be defined using Microsoft Power BI and the ELK stack method. Cataloging and analyzing data will be performed using the ELK stack method (Elasticsearch, Kibana, and Logstash). This is the medium to which Team03 will use to categories these associated events.	Microsoft products are offered by the client's organization, which is why the requirement to use PowerBI through Microsoft was recommended. System components will be defined later during decision gate 04 & 05, the function definition record as well as the system architecture definition record respectively.	Bruce Stansell	2
9	R.1.2	Academic Requirements	The solution shall address academic stakeholder requirements.			Liberty University	3
10	R.1.2.1	Interim Reports	The team shall develop and present Interim Reports.	Interim reports must be submitted regularly. Each interim report must include the meeting minutes, technical summary, presentation, and MS Project file.	The course instructor needs updates on the progress of our project for grading and teaching purposes.	Dr. Bae, Dr Lim, 481 Source Material	3

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ID	WBS	Nickname	Name	Description	Rationale	Originator	Priority
11	R.1.2.2	Bill of Materials	The team shall include a BOM.	The Bill of Materials will not exceed $500 as agreed upon with the client.	The School of Engineering and client need to know the parts and corresponding costs required for our product.	Dr. Bae, Dr Lim, 481 Source Material	3
12	R.1.2.3	Budget	The project budget shall not exceed $500.	This is stated in the course syllabus and is agreed upon by the client and their corporation. Additional funding by the client will be accepted on a case-by-case basis.	The School of Engineering allocates $500 for the project's budget.	Dr. Bae, Dr Lim, 481 Source Material	3
13	R.1.2.4	Time Constraint	The solution must reach a concluding milestone by the end of the Spring 2022 semester.	The Spring 2022 semester shall be the implementation phase for all hardware components of the project and has a hard stop on May 10.	The course ends at this time.	Dr. Bae, Dr Lim, 481 Source Material	1
14	R.1.2.5	Decision Gates	For each decision gate, the team shall submit and discuss the relevant technical design documentation with stakeholders. The team must receive formal approval from all stakeholders before continuing to the next decision gate.	When approaching a decision gate, team members will discuss with the client the relevant technical design documentation and previously agreed upon requirements that will be implemented. These "previously agree upon requirements" refer to both system and stakeholder requirement that have been defined in Decision Gates 1 & 2. The team will also reference the mission statement and request additional input from the client.	Decision gates allow the design process to be monitored and carefully planned at each step, encouraging the development of a satisfactory product.	Dr. Bae, Dr Lim, 481 Source Material	2

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15	R.1.2.6	Final Reports	Final project reports shall be submitted by the hard deadlines presented in the syllabus for each Capstone semester.	These reports consist of technical management records of project-related activities.	The report will demonstrate that the team has clearly and thoroughly documented their project.	Dr. Bae, Dr Lim, 481 Source Material	2
16	R.1.2.7	Critical Design Review	The team shall clearly demonstrate that their detailed design solution documented in the system design definition record which may be traceable of all Wasson domains.	All members shall attend this final presentation on the date and time specified on Bb. The team will have 7 minutes to present and 7 minutes to answer questions.	This presentation will demonstrate that the team has fulfilled the requirements of their project.	Dr. Bae, Dr Lim, 481 Source Material	2
17	R.1.2.8	Detailed Design	The team shall complete a detailed design definition record.	This record shall satisfy the selected system architecture from Decision Gate 5 and may be traceable of all Wasson domains. The record shall document the outputs of the System Design Definition Process performed by the team in the form of a pdf main document, a GENESYS database file, and all supporting documentation.	This will verify that the detailed design is documented and traceable to all Wasson domains.	Dr. Bae, Dr Lim, 481 Source Material	2

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18	R.1.2.9	Demo of Solution Prototype	Team shall produce a demo of the solution reading IN test pattern data; the demonstration shall then show the solution detecting abnormal behavior. The demonstration shall be conducted by the Spring 2022 deadline specified in Bb.	Prototyping will both be digital and physical as defined by the client. The directed research towards this prototype does not have to be physical but can solely provide analytical data.	This usually signifies that the team has used their digital designs to create a physical product. Instead, open-source documentation will signify Capstone Completion	Dr. Bae, Dr Lim, 481 Source Material	1
19	R.1.2.10	Poster	The team shall produce a poster that includes key details of the project background, execution, and results.	The poster will define the systems engineering Wasson Model process for producing a product using Requirements (both stakeholder and system), behavioral attributes, functional attributes/architecture, and operational attributes. These concepts will be connected using GENESYS and will be in-line with the Mission Statement.	This poster summarizes the team's progress throughout the two Capstone semesters.	Dr. Bae, Dr Lim, 481 Source Material	3

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20	R.1.2.11	Transfer of Prototype	At the conclusion of project term, students shall execute a Transfer of Prototype and deliver all lab notes, work logs, and other research documentation, including any design or physical prototype(s), to Client where not already available to all members of the team.	The open-source nature of the product will follow that the client has real-time access to all working documents, as do all team members.	This signifies that the students have completed their Capstone responsibilities by submitting their prototype to the client.	Dr. Bae, Dr Lim, 481 Source Material	2