‘S.R.M’

A blockchain solution for a perishable supply chain

PROJECT PLAN

Design Patterns for Blockchain – BCDV 1011
George Brown College
Professor Dave Mckay & Professor Paul Chafe
June 2020

CHERUKKATIL NASEER – 101280592
HENRY ERIKO MWENGE – 101286818
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WANJA MASCARENHAS - 101280022
ZAKARIYA JASAT – 101092428

SupplyBlock Risk Management Inc.

A PERISHIBLE SUPPLY CHAIN START-UP.

We are leveraging *Distributed Ledger Technology* by integrating *Blockchain* infrastructure and *Ethereum Smart Contracts* in our business model.

We strive to streamline how perishable supply chains work for manufacturers, transporters, and distributors.

Our business will facilitate distributers in monitoring commodity status and pinpoint the specific area of failure to minimise costs related to product recalls.

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Project Decomposition

EPIC 1

- Writing Smart Contracts with Truffle
    - Manufacturer smart contract
        - Data types
    - Transporter smart contract
        - Data types
    - Distributer smart contract
        - Data types
    - ERC721 smart contract
        - Data types
    - Master smart contract
        - Data types
    - Writing Test Cases

EPIC 2

- Web Server
    - Building backend
        - Node.js & Express
        - Web3
- Front End
    - Designing user interface
        - React.js

EPIC 3

- IoT
    - Retrieve information needed
- Database
    - Store the history
        - Connect MongoDB

Time Estimates

Work Breakdown Structure	Estimated Hours	Actual Hours	People Assigned	% complete
1 Smart Contract	**27**	**45**		**100%**
1.1 Manufacturer smart contract	4			
1.2 Transporter smart contract	4			
1.3 Distributer smart contract	4			
1.4 ERC721 smart contract	4			
1.5 Master smart contract	4			
1.6 Create Smart Contract Tests	4			
1.7 List all Data Types	3			
2 Build Web Application	**18**	**28**		**100%**
2.1 Build Backend	10			
2.1.1 Implement Web server	2			
2.1.2 List the routes	1			
2.1.3 Integrate Smart Contracts	4			
2.1.4 Create Tests	3			
2.2 Build Frontend	8			
2.2.1 Design user interface	3			
2.2.2 Integrate React.js	3			
2.2.3 Create Tests	2			
3 Leverage IoT	**10**	**-**		**0%**
3.1 Connect IoT to Web Server	10			
4 Connect Database	**4**	**3**		**100%**
4.1 Connect Web Server to the Database	3			
4.1.1 Build schemas to store history	1			

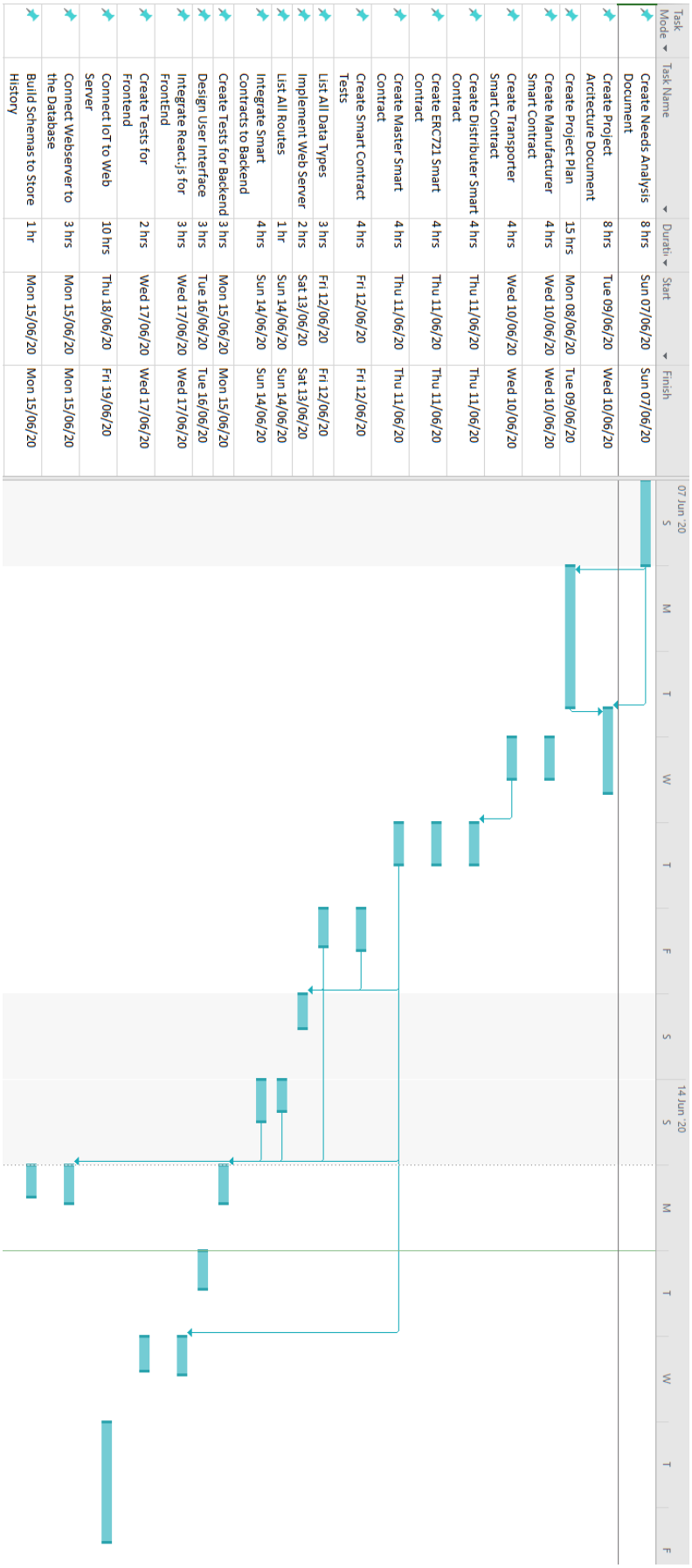
Staffing

ROLES

Project Managers	Zakariya, Lorran
SCRUM Masters	Zakariya, Wanja
Fullstack Developers	Lorran, Wanja
Blockchain Developers	Naseer, Lorran, Wanja, Henry, Zakariya
Human Resource Manager	Zakariya
Industry Researchers	Henry, Naseer
Blockchain Analysts	Lorran, Henry
Marketing Managers	Zakariya, Naseer
Technical Support Managers	Naseer, Henry

Task	Responsibilities	Status	Year 1
1 Business Tasks			
1.1 Create Business Plan	Project Managers	Completed	✓
1.2 Survey the market	Industry Researchers	Completed	✓
1.3 Collect data	Industry Researchers	Completed	✓
1.4 Develop marketing campaign	Marketing Managers	Active	
1.5 Maintain Employee Relations	Human Resource Manager	Active	
2 Technical Tasks			
2.1 Build Website	Fullstack Developers	Completed	✓
2.2 Develop blockchain solution / Smart Contracts	Blockchain Developers	Active	
2.3 Maintain IoT	Technical Support Managers	TBA	

Dependencies



Task Mode	Task Name	Durati	Start	Finish
	Create Needs Analysis Document	8 hrs	Sun 07/06/20	Sun 07/06/20
	Create Project Architecture Document	8 hrs	Tue 09/06/20	Wed 10/06/20
	Create Project Plan	15 hrs	Mon 08/06/20	Tue 09/06/20
	Create Manufacturer Smart Contract	4 hrs	Wed 10/06/20	Wed 10/06/20
	Create Transporter Smart Contract	4 hrs	Wed 10/06/20	Wed 10/06/20
	Create Distributer Smart Contract	4 hrs	Thu 11/06/20	Thu 11/06/20
	Create ERC721 Smart Contract	4 hrs	Thu 11/06/20	Thu 11/06/20
	Create Master Smart Contract	4 hrs	Thu 11/06/20	Thu 11/06/20
	Create Smart Contract Tests	4 hrs	Fri 12/06/20	Fri 12/06/20
	List All Data Types	3 hrs	Fri 12/06/20	Fri 12/06/20
	Implement Web Server	2 hrs	Sat 13/06/20	Sat 13/06/20
	List All Routes	1 hr	Sun 14/06/20	Sun 14/06/20
	Integrate Smart Contracts to Backend	4 hrs	Sun 14/06/20	Sun 14/06/20
	Create Tests for Backend	3 hrs	Mon 15/06/20	Mon 15/06/20
	Design User Interface	3 hrs	Tue 16/06/20	Tue 16/06/20
	Integrate React.js for FrontEnd	3 hrs	Wed 17/06/20	Wed 17/06/20
	Create Tests for Frontend	2 hrs	Wed 17/06/20	Wed 17/06/20
	Connect IoT to Web Server	10 hrs	Thu 18/06/20	Fri 19/06/20
	Connect Webserver to the Database	3 hrs	Mon 15/06/20	Mon 15/06/20
	Build Schemas to Store History	1 hr	Mon 15/06/20	Mon 15/06/20

Cost and time estimate

ject Plan Costing Data

Go to Team

Status Color Legend & Toggle

Not Started	In Progress	Delayed	Complete	Recurring	Custom 2	Custom 3	Custom 4
ON	ON	ON	ON	ON	ON	ON	ON

Task	Status	Owner	Assigned to	Anticipated Start Date	Anticipated End Date	Actual Start Date	Actual End Date	Estimated Cost	Actual Cost
Needs Analysis	Complete	Henry M.	Henry M.	2020-06-07	2020-06-09	2020-06-07	2020-06-09	$4,000	$15,000
Design Storyboards	Complete	Wanja Mascha	Zakariya Jasat	2020-06-07	2020-08-15	2020-06-07	2020-06-10	$300	$3,000
Review Storyboard Design	Delayed	Wanja Mascharenas		2020-08-01	2020-08-20			$200	$4,000
Research Analysis Phase I	Complete	Cherukkatil Na	Henry E. Mweng	2020-06-05	2020-06-10	2020-06-08	2020-06-15	$3,000	$9,000
Purchase and Installations of Hardwares	Complete	Zakariya Jasat	Zakariya Jasat	2020-09-01	2020-09-15			$20,000	$30,000
Purchase and installations of softwares	Custom 2	Loran Sutter	Wanja Mascharenas					$1,500	$8,000
Installation of Internet of Things	In Progress	Loran Sutter	Cherukkatil Nas	2020-09-12	2020-09-25			$5,000	$10,000
Quality Control, Progress Reports	In Progress	Wanja Mascha	Cherukkatil Nas	2020-07-01	2020-10-01	2020-07-01		$925	$7,000
Utilities and Rentals	Recurring	Zakariya Jasat	Wanja Mascharenas	2020-06-04	2021-06-30			$30,000	$30,000
Installation and Calibration of Internet of Things (IoT)	Delayed	Zakariya Jasat	Third Parties	2020-06-13	2020-06-14			$5,000	$15,000
Research Analysis Phase II	Not Started	Henry E. Mwe	Cherukkatil Naseer					$3,000	$3,200
Maintenance of IoT	Not Started	Cherukkatil Na	Loran Sutter	2020-09-01	2020-09-15			$500	$5,000
Salaries	Recurring	Zakariya Jasat	Wanja Mascharenas	2020-05-30	2020-06-01	2020-06-07	Ongoing	$30,000	$50,000

Team Bio

Cherukkatil Naseer

Nas is a Blockchain Development student at George Brown College and Director of NLM UA-Systems. He believes that rapid development in AI, IoT and Blockchain would create better efficiency and security in most of the industries and would open more jobs/business opportunities in new sectors. Nas has been well-trained on avionics products of Boeing and Airbus commercial Aircrafts. He holds UA (Unmanned Aircraft) Pilots certificate approved by CAAS. He served Red-cross, Singapore as a volunteer for two years where he trained on First Aid and CPR. He spends his free time flying, building, and modifying drones.

Henry Eriko Mwenge

Eliko 岳飞 is the co-founder of The Briefcase Trader and is responsible for producing the company's equity research reports. He is the chief editor of The Briefcase Trader Soft Commodity and Livestock Report. Eliko is passionate about commodities and developing a fully integrated Structured Commodity Trade Finance network specific to emerging markets. He enjoys playing rugby, birdwatching, and beekeeping.

Lorran Sutter

Lorran is a Computational Engineer that studied a couple of different fields, such as computational modeling, numerical methods, computer graphics and machine learning. He has work experience in web development mainly employing C# in developing web crawlers and automated tests for large legal management systems. Engineer by background and programmer by heart, in love with Python and JavaScript. Always looking for innovative and disruptive technologies, which led him to start studying Blockchain Development in George Brown College. He believes that humanity must rely on technology to build a better future.

Wanja Mascarenhas

Wanja Mascarenhas is an IT professional and educator. As a developer, Wanja worked in the banking industry. As an educator, she taught computational algorithms, programming, data structures, and operational research. She spends her free time volunteering. She loves talking with friends and sharing experiences. Wanja is currently studying Blockchain Development at George Brown College.

Zakariya Jasat

Zak has lived and worked in nations across the globe, making him an empowered multicultural business administrator. He is exceptional at adapting to change, managing human resources, and viewing situations through several lenses. He has helped set up businesses from the ground up and lead multiple keystone projects. He truly appreciates the importance of owning strategic objectives by improving organizational performance through boosting employee engagement and creating a healthy organizational culture through fostering diversity and inclusion. Zak is a calculated risk taker, motivated self starter and is always committed to leaving a legacy that inspires positive change everywhere he goes. He is the strong open-hearted wind that ignites powerful contribution.