Models reflection:

Instead of doing the tasks in the order which they are presented in the assignment, we started to discuss what our ambitions and goals were for the bike. Connected those to whom their beneficial for and what needs they fulfill. With that information we were well prepared and unanimous writing the SRS requirements. We them based our diagrams upon our SRS requirements and goals as a visual overview of them. The models provided information that helped us determine the structure of our project and if the requirements met their desired attributes. Therefore, we continuously updated our SRS according to our new understandings from the diagrams, the same were true the other way around as well, which made us understand their strong connections to each other and the different purposes they fulfilled.
That was much the case between the diagrams as well. We never finished one diagram to then start with the next one, we came to halts were our current knowledge were too vague to base assumptions on. Expanding another diagram then helped us get a better understanding for the others.

We've come to see some disadvantages with diagrams as well thought. The diagrams has a distinct disadvantage compared to a SRS list when viewing large number of requirements. The model gets easy counterproductive when trying to catch a to big scope or gets too detailed. Especially the goal model. Visual overview can provide valuable help, however it's easy to overthink them and overdo them instead.

SRS Requirements(minimum 10 req.):
(FR,NFR & Constraint):

Functional Requirements:

1. The bike should have an GPS system as well as a 3g/4g network based alert system built in to alert the user if something is wrong.
2. Bike should learn the frequently used roads and if the road is closed the user should get an alert.
3. Owner should be able to alert the customer service if the bike gets stolen.
4. The customer service should be able to provide the local authorities about the bikes position.
5. The bike should be able to present the user with possible routes and be able to guide the user according to the chosen path in real-time.
6. Bike should be able to calculate the intensity and workout time.
7. The bike should have autobalance.
8. The status, location, real time usage and sensors of the bike should be accessible for the user remotely.
9. The electric bike should eliminate waste of energy by regeneration. (See follow-up in constraints.)
10. The bike should give the user the possibility to choose the level of help distributed by the motor.

11. The electric bike should have all the benefits of a traditional bike.

Non-Functional Requirements:

12. Bike should be accessible for the user 24/7.
13. The using of the bike, including maintenance should be easy and non requiring for the user.
14. Using the functions in the bike should not be complicated.
15. The battery should be easy to carry.
16. The bike should reduce the harm on the environment by making more people use a bicycle as their main transport solution.
17. Improve the health for both the users and as well the non-users whose environment are positively affected by the reduced traffic and cleaner air this accomplishes.

Constraint:

18. the System should be able to have multiple user accounts.
19. Bike should be in different sizes for different users.
20. The battery should be easy and fast to replace without requiring mechanical knowledge or additional tools.
21. The battery should be easy to charge inside the user's home
22. The bike should give the user the option to charge the battery manually when pedaling.
23. The bike should be able to recognize when a registered users phone and or smart-watch is close to it and unlock itself.
24. The bike should be able to unlock using fingerprint authorisation.
25. The bike should take care of the otherwise wasted energy while braking to regenerate the battery.

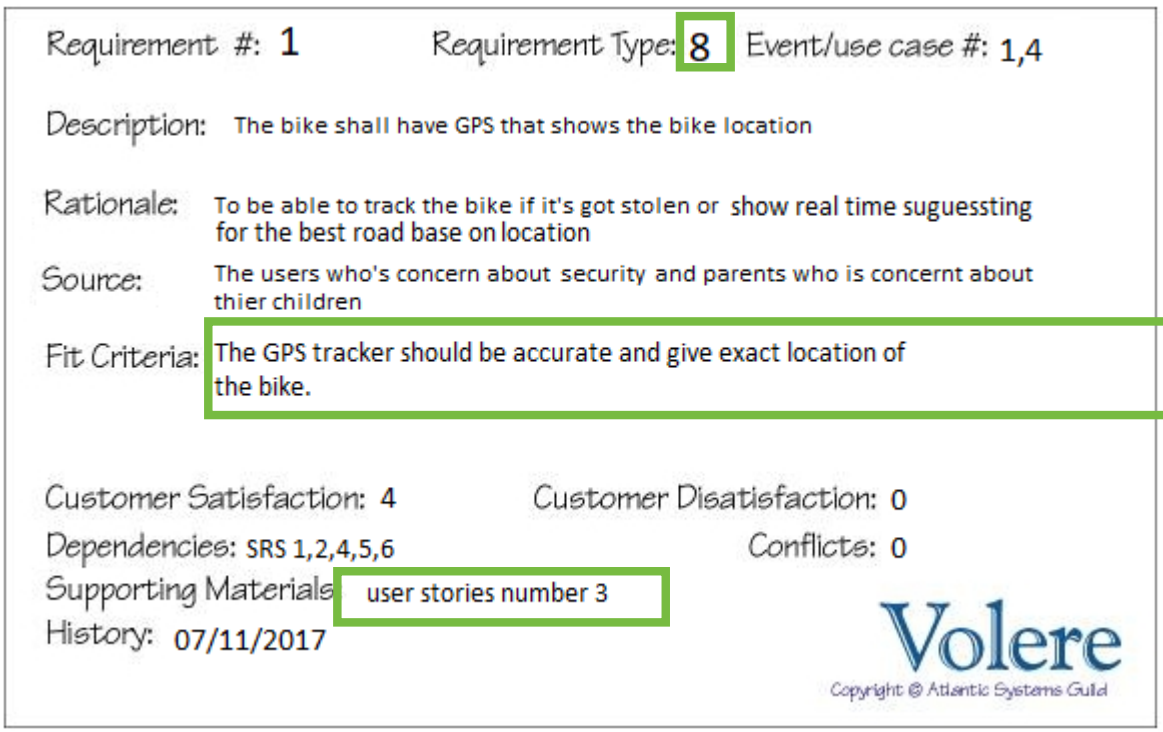
User Stories(minimum 10 stories):

1. As an elderly i need a bike that is semiAutomatic so i can paddle easier.
2. As an exchange student in an unfamiliar town I would like the bike to have an inbuilt navigation system so i don't get lost.
3. As an user i want to get notification if unauthorized person uses my bike"steals it" and an easy way to provide the local authorities with the bikes location.
4. As a person whose bike got broken in middle of the road 3 time i need my bike to notify me if its has any problem that should be repaired.
5. As a person that uses ebike it will be nice to have a bike that charges itself when i'm pedaling so i don't have to put it to charge every night.
6. As an athlete i want my bike should keep track of my physical activity so i can improve my workout.
7. As an elderly the bike should be easy to use so i don't get confuse with all those technology.
8. As a parent to 3 year old, it will be nice if the bike has autobalance so it will be easier to ride for children.
9. As a user i want the bike to connected to my phone to avoid having to always carry a separate key for it.

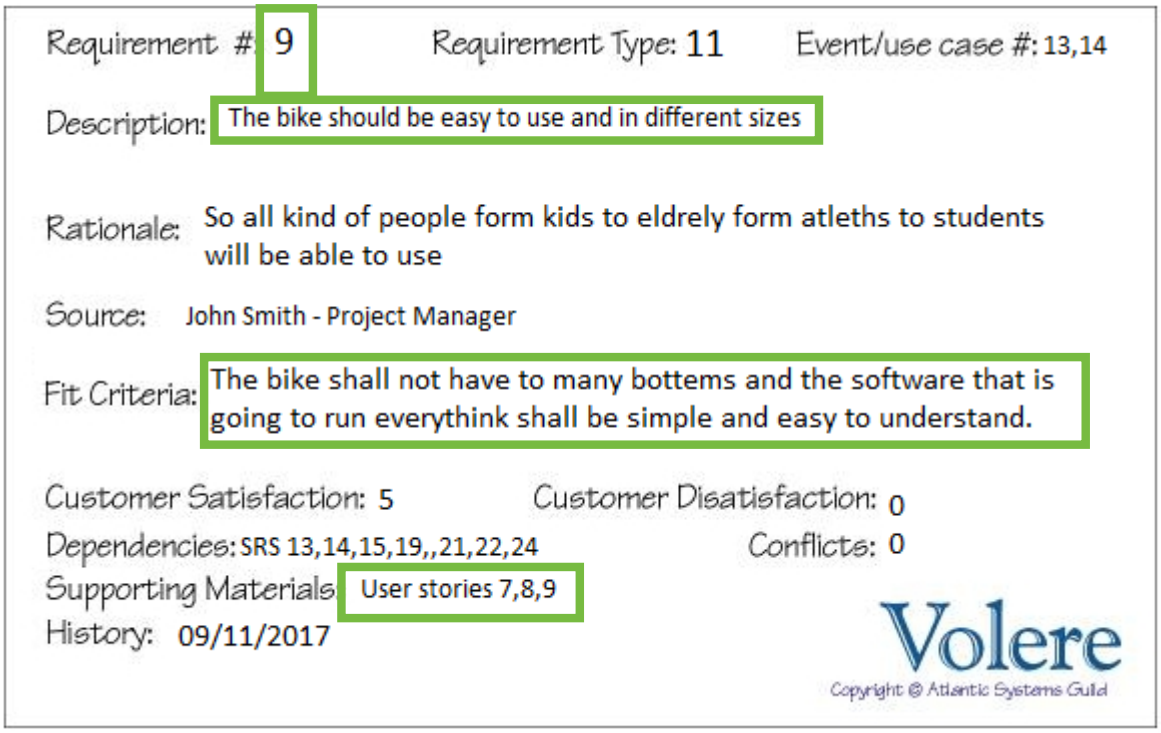
10. As an employee I want to ride my bike everyday and be aware of the accidents in the traffic to avoid being late to work.

Requirements Template:

1.



2.



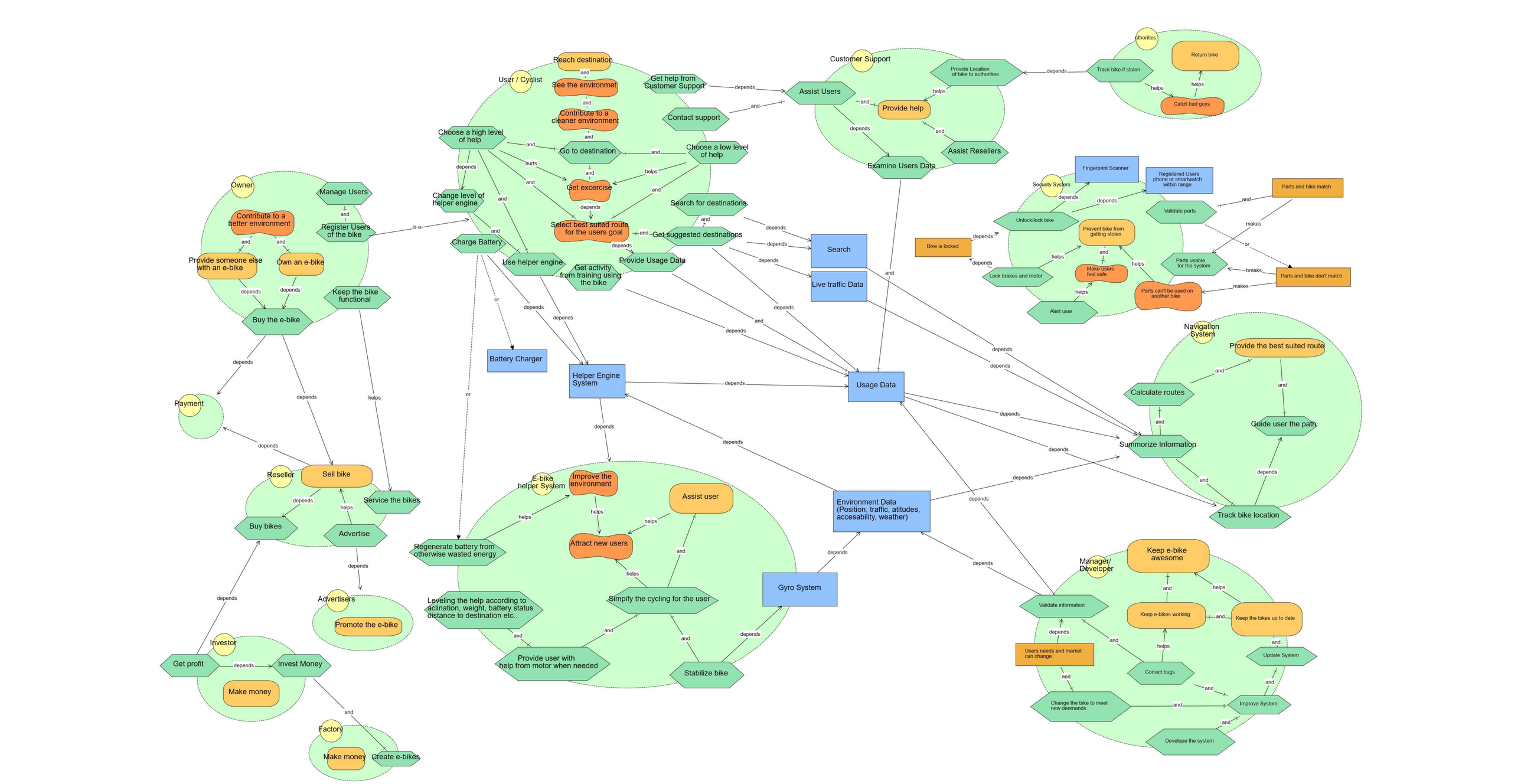
EARS Structured Text:

1. When the owner contact customer service that the bike got stolen, the customer service shall contact to authorities and provide them the bikes' position.
2. If the bike needs repair, then the bike shall notify to owner.
3. While cycling , if the battery gets lower than 10% , the system shall start charging the battery when paddling.
4. Where the GPS function is on and location to go has been selected, the user shall get possible routes and the bike shall be able to guide the user in real-time.

Reflection(max. 400 world):

1. Yes, it did. by adding GPS in the functional requirement, we added more functions like we give ability to customer service to locate the bike and contact the authorities and at the same time we change the requirements template
2. We didn't found difficulties in writing template and structured text since template and structured text is somehow based on SRS requirement , but we found difficulties to coming up with user stories since we don't have any real users or stakeholders.
3. The benefits from all requirements that gave us better understanding on what kind of function should system have without tying us to special design. The one of the drawbacks of all requirements that we have to do write it without having any users or any stakeholders.


get bike status
login , enter personal information
get profit data
get to any destination
get reports and usage data
get the bike location data
get a memberhsip
user
owner
maneger
invastor
customer service


Reach destination
and
See the environmet
and
Contribute to a cleaner environment
and
Go to destination
and
Get excercise
depends
Select best suited route for the users goal
and
Get suggested destinations
depends
Provide Usage Data
depends
Search
depends
Live traffic Data
depends
Usage Data
depends
Helper Engine System
depends
Environment Data (Position, traffic, atitudes, accesability, weather)
depends
Gyro System
depends
Stabilize bike
and
Simpify the cycling for the user
and
Assist user
helps
Attract new users
helps
Improve the environment
helps
Regenerate battery from otherwise wasted energy
helps
Leveling the help according to aclination, weight, battery status distance to destination etc..
and
Provide user with help from motor when needed
and
E-bike helper System
User / Cyclist
Choose a high level of help
and
Choose a low level of help
depends
Change level of helper engine
and
Use helper engine
and
Get activity from training using the bike
depends
Charge Battery
depends
Battery Charger
or
hurts
helps
Search for destinations
and
Get help from Customer Support
depends
Contact support
and
Assist Users
and
Provide help
depends
Examine Users Data
depends
Assist Resellers
depends
Provide Location of bike to authorities
helps
Customer Support
depends
Track bike if stolen
helps
Return bike
helps
Catch bad guys
uthorities
Owner
Manage Users
and
Register Users of the bike
is-a
Contribute to a better environment
and
and
Provide someone else with an e-bike
Own an e-bike
depends
depends
Buy the e-bike
depends
Keep the bike functional
helps
depends
Payment
depends
Reseller
Sell bike
depends
helps
Buy bikes
Advertise
Service the bikes
depends
Advertisers
Promote the e-bike
depends
Investor
Get profit
depends
Invest Money
Make money
and
Factory
Make money
Create e-bikes
Security System
depends
Fingerprint Scanner
depends
Registered Users phone or smartwatch within range
Unlock/lock bike
depends
Validate parts
and
Parts and bike match
makes
or
Bike is locked
depends
Prevent bike from getting stolen
and
Parts usable for the system
breaks
Parts and bike don't match
depends
Lock brakes and motor
helps
Make users feel safe
helps
makes
Parts can't be used on another bike
helps
Alert user
Navigation System
Provide the best suited route
and
and
Calculate routes
and
Guide user the path
depends
Summorize Information
and
Track bike location
depends
Manager/ Developer
Keep e-bike awesome
and
helps
Validate information
depends
Keep e-bikes working
and
Keep the bikes up to date
and
Users needs and market can change
and
helps
Correct bugs
and
Update System
and
Change the bike to meet new deemands
and
Improve System
and
Develope the system