12. We have created several personas and scenarios to help us identify the requirements. Now, we are going to see two examples of personas and a scenario. The first persona is Kikkos Kikkou, a technical school instructor. He has many years of experience in the public sector and he always tries to deliver interactive lecture to his students.

13. Our second persona Is Maria Andreou, a 16 years old student at the Cyprus Technical School. She studies vehicle engineering and she usually likes servicing her 50cc motorbike. She likes spending her afternoon with her father at his business.

14. Let’s see a scenario with Maria. Maria after school she was servicing her 50cc motorbike but tomorrow she has an exam about the suspension system. She doesn’t like studying theory therefore she decides toy use TheMech website to learn about the suspension system interactively. She is familiar with the website since she uses it as a reference when servicing her motorbike. Suddenly she has to leave the house so she is going to continue study in the car, using her smartphone.

15. We have created a sitepath to identify how different users can find our website and how the interact with it. Our standard users are placed in the top left corner, the teacher and student who access our website through its homepage. Mechanical Engineers can find our website through browsing, for example when searching for a specific system. Job hunters can access our website through the about us page.

16. We created a low fidelity prototype for the application view to understand how the screens should change in a smartphone in order for the website to be usable. Based on our scenario a responsive design is important since most students are using their smartphones than personal computers.

17. Following that, a low fidelity, throw away prototype was also created for the website view to experiment with different views. Finally, a medium fidelity prototype was created using HTML, CSS, JavaScript and Bootstrap to test how the navigation works and different functionalities such as drag-and-drop.

18. In this prototype you could navigate into the learn tab where you can hover over different points of interest that represent the components and read their description. Also, you could take a quiz by drag-and-drop the different components to assemble the system. To evaluate our design we showed it to some potential users and the feedback we received was that the design is straightforward so we could continue on developing our MVP.

21. Demo

22. We structured our system as follows. We have 4 folder in the root directory, the assets, css, js and routes. In the assets we have our images. In css the css files for the design. In js the js files for the functionalities such as drag-and-drop, mouse hovering and navigation. Finally in the routes we have the different functionalities for the backend that utilize the MEAN stack in order to read, update or delete data from the database.

25. In the learn functionality we implemented two methods: the getLecture that takes as input the id of a system and return the lecture, and the completeLecture where it completes the specific lecture for the logged in user. We also implemented the mouse hovering for the different points of interest using javascript.

26. In the quiz functionality we implemented another two methods, the getQuiz which takes as input the id of a system and returns the system, and the completeQuiz where it evaluates and saves the score of the specific logged in user. We have also used JavaScript to calculate the score based on how many components have been placed correctly to assemble the system.

27. Some other functionalities are the listSystems which fetches the available systems from the database and the updateProgress which takes as input the email of the user and return his progress both in the learn and quiz part.

28. The last functionality that we implemented is for the professor, the addLeture which creates a new lecture. This functionality initially creates the new lecture in the lectures collection and then, with the next middleware function it creates the new system in the systems collection using the subject field.

29. Now we are going to see how the works was distributed between me and Vasilis. …

30. In the future, we are going to …