

**Sprint Evaluation**

In this sprint, we have received our hardware components that we have ordered in the previous sprint. Our main goal was to set up the required circuit for the load sensors and Arduino board and be able to obtain weight values by implementing its codes. However, we realized that the amplifier we ordered (INA125P) requires setting up an additional op-amp circuit in order to be suitable for our 3-wired load sensors. We had three options in this situation; trying to set up the circuit with an op-amp while using two 3-wired load sensors, ordering new load sensors with 4 output wires and ordering another load cell amplifier with a breakout board. Considering there are not many resources that demonstrates the setup with INA 125P and 3-wired sensors, we decided not to take any risks and we ordered an HX711 amplifier. HX711 amplifier gave us a ready Arduino library and easy setup options.

This incident cost us a week in our timeline. We have received the HX711 amplifier the following week and completed the circuit with the sensors and the board. After that, we used the existing Arduino libraries to complete its implementation and now, we are able to measure weights and display weight values on the Arduino interface screen.

Other than the hardware part, we have started our server side research. Firstly, we tried to install Apache Web Server and Apache Tomcat7 to our Ubuntu based computer. However, it took a lot of effort to make the necessary configurations. After that, we decided to use our skills which we obtained from our Ceng 435 (Network) course and use Python for server side. Python is also used for machine learning and pattern recognition, since it is good compromise between higher and lower level languages, it has very large community and ML specialized libraries such as Orange, Scikit-learn and building libraries is easy. Hence, we created a simple server program in Python and executed it in Terminal. After that, we have observed Android application can connect to server through Wi-Fi. Therefore, we decided to create a simple database using SQLite. Connection between Python and SQLite took a few minutes and interface for SQLite (SQLite Database Browser) was available in Ubuntu Software Center. We decided to use SQLite and Python socket programming until the Demo Day since they meet our goals for that day. However, for the second semester, if we need to use large datasets and face with machine learning and pattern recognition algorithms, then we will consider to change our database engine. Since we use a notebook of ours as a server, IP address of the server is not stable. If we need a stable server and more space for the reasons above, we will also consider using hosting services. The server side codes are accessible from the Gitlab page of our project.

After finishing the Database connection, we reverted our attention back to Application side. We managed easily to connect most of the functions to database and now our application is capable of introducing new food, new recipes and much more. Right now, we are discussing how to implement the recipe search function in order to give the users the best search and recipe access possible. A small showcase of the App-Server connection can be accessed from the link provided:

<https://drive.google.com/file/d/0B7s1vLdqqRiMNDlnR25URDBWmJzMDZjTE1obGpHbG1PMUd3/>

For the website of the project, we first used an online tool (Wix) that could be directed to our department server. Nevertheless, after discussions with our professors, we decided to code it ourselves. We finished the website of our project by programming in HTML5, Javascript and CSS and using some ready templates which are now uploaded into department folders. Also we prepared a presentation that will be delivered on 7th of January as a sum-up of our work and end of term presentation which can also be accessed from the link below. <https://drive.google.com/file/d/0B7s1vLdqqRiMYVNSU2VoVHBtYmM/>

<b>Team evaluation</b>				
<p>We continued to meet once a week and distribute our tasks among the group members. Because of our busy schedules, we could not hold any additional meetings all together. We had several meetings 1-to-1 or 3 of us together to work on the project. Our cooperation strategy will stay the same until Demo Day and we will reevaluate during Winter Break to develop a more efficient working system.</p>				
Task	Assigned Member	1 <sup>st</sup> week	2 <sup>nd</sup> week	3 <sup>rd</sup> week
SRS documentation	All members	*	*	*
Setting up the circuit with Arduino and load sensors	Aslıhan		*	*
Installing Arduino Software and testing the implementation	Yağmur			*
Implementing Android application user interfaces	Burcu, Aslıhan, Yağmur			*
Creating server and database	Burcu		*	*
Connecting Android application to database	Burcu			*
Creating project website	Aslıhan		*	*
Preparing end of term presentation	Aslıhan, Yağmur			*
<b>Backlog Updates</b>				
<p>In the previous sprints, we could not become clear about how to transfer weight values from the scales to the database. In this sprint, however, we have done some research on setting up a local server. After we saw that we can connect application to the local host, we moved on to the database design. Users are now able to do simple database operations such as creating an account, logging in, adding new food and seeing dummy weight values which are stored in the database with the application.</p> <p>In the current situation, we can measure food, display the weight values from our computers, send dummy values from the database to the application and update the database through the application. We will focus on transferring the real values to the database in the second semester and when the whole transfer is complete, we will start improving the design of the application and working on the recipe suggestion algorithms.</p>				