# Software Projects Milestone 2

# Initial User Requirements & Market Survey

## Group Number: 24

## Concept Name: Inventory Weight scales

## Initial User Requirements

Our Initial idea was to create a smart shelf containing scales that can measure the stock levels of items placed on them for home use.

We Interviewed and surveyed about 15 shoppers on their shopping habits and whether they would be interested in a shelf/product that measures your stock of certain items and either warns or re-orders them when they run low.

The overall response was very positive. People said they would primarily find it useful for toiletry products, such as shampoo, soap, etc. But there were some concerns about feasibility and convenience e.g.

* Whether each space on the shelf can only be used by one item
* How you add items to the shelf, so it knows what it is and when it’s running low
* How much time it would take and how much it would cost and the practicalities of automatic re-ordering.

We have discussed as a group the issues raised and considered other areas where the same or similar technology may be useful and how to mitigate some of the problems.

We re now planning to focus on targeting the shelves for inventory management in labs and small businesses, where the task of tracking and maintaining inventory has a much greater importance.

We are also thinking of adding an image recognition component to an associated application that will allow for the items in each position of the shelf to be recognised without much user input.

We are now in the process of finding new people to interview who stakeholders for this new application, e.g. lab technicians, researchers, small business owners etc.

## Market Survey

We searched for competing solutions in a range of applications. Mainly using google, but also exploring websites targeted to relevant stakeholders (e.g inventory management sites).

* We could not find any competitors or similar products for the home market. The closest thing we found were amazon dash buttons which don’t compete directly.
* We found a lot of interest in the supermarket space, with many competing smart shelf and inventory management solutions. Losses due to stock issues and theft are large motivators as well as the potential of using the data gained from smart shelves for advertising and predictive stocking of items.
  + There are many competitors in this space:
  + A report by intel: <https://www.intel.co.uk/content/www/uk/en/retail/digital-retail-futurecasting-report.html>
  + Shelf stock management using light sensors: <https://www.wiseshelf.com/>
  + Shelf stock management using a combination of IOT load cells and computer vision: <https://shekelbrainweigh.com/index.php/products-solutions-retail/retail-innovations-retail>
* For Medium size businesses and stock rooms for labs ‘inventory management strategies’ are a field of research. We found websites related to this topic and an academic paper.
  + We also found a competitor doing something similar for smart weighing solutions for ‘racking systems’ (red bins) in electronics and other labs: <https://www.mt.com/hk/en/home/supportive_content/news/po/ind/ind-smartshelf.html>

We will need to do some more research into our new focus of labs and medium sized businesses, with a special emphasis on competing solutions and how we can differentiate our product and allow it to be used in a range of different labs and businesses. The competitor we found was for a specific type of storage red bin shelf system, we hope to make a more generalised shelf/ product.

## Open Questions about this concept

* What form factor our shelf will take, whether the shelves will be a unit (of furniture) or if our product will be a way to convert normal shelves into a smart shelf by using weighing pads.
* Whether our product will be tailored to a single stakeholder or if it will be more general purpose
* What features would be useful in a companion app/ program would have.