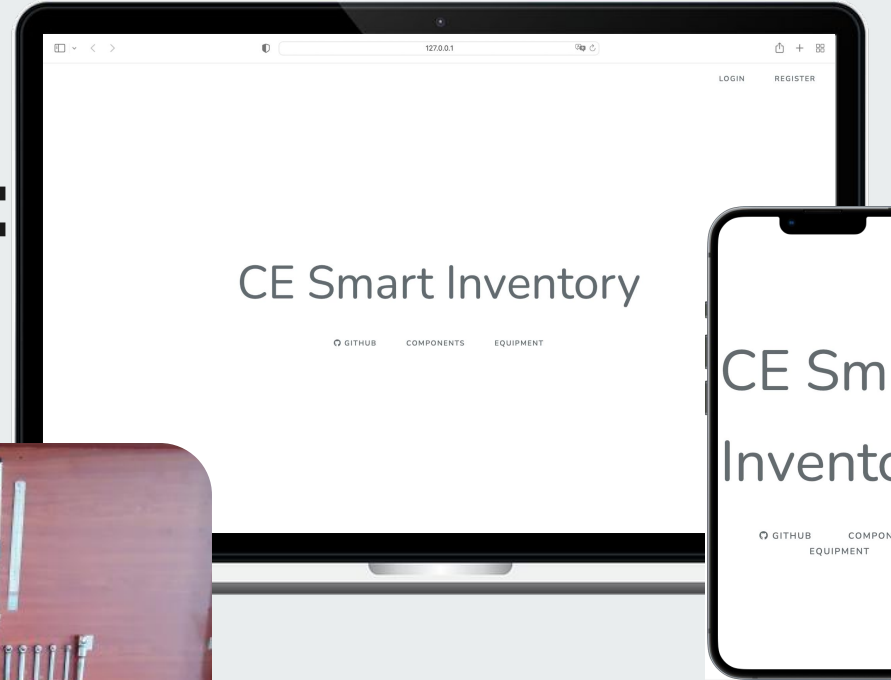


# CO227 : COMPUTER ENGINEERING PROJECT



## Smart Inventory Management System: ITEM LOCATOR

Project Proposal  
Group 13



# GROUP 13 - MEMBERS

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# Outline

1. Project Motivation
2. Problem Introduction (Generic Approach)
3. Problem Introduction (Department Specific Approach)
4. Solution (Generic)
5. Solution (Department Specific)
6. High Level Plan
7. Timeline
8. Q&A

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# 1. PROJECT MOTIVATION

- 
- Identification of real world problems under the scope of a possible software solution.
  - Construction of relatively complex software solutions using the knowledge gained from the previous courses.
  - Practise of teamwork and related technologies.
  - Modeling the real world problem, breaking it down into sub-tasks, and applying deadlines to sub-tasks.



- Use of appropriate tools and techniques for the sub-tasks to increase efficiency.
- Preparation of technical documents, report writing.
- Work with limited guidance and self-learning approach.
- Output of a real world application, to be used to solve the identified problems.

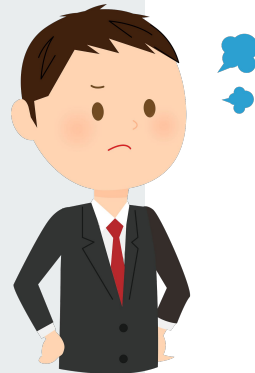
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## 2. PROBLEM INTRODUCTION (GENERIC APPROACH)

Let's see some  
inventory systems  
in different scopes

...

(Imagine Finding/Locating A Given Item  
From The Inventory)



1. Banks



2. Hospitals



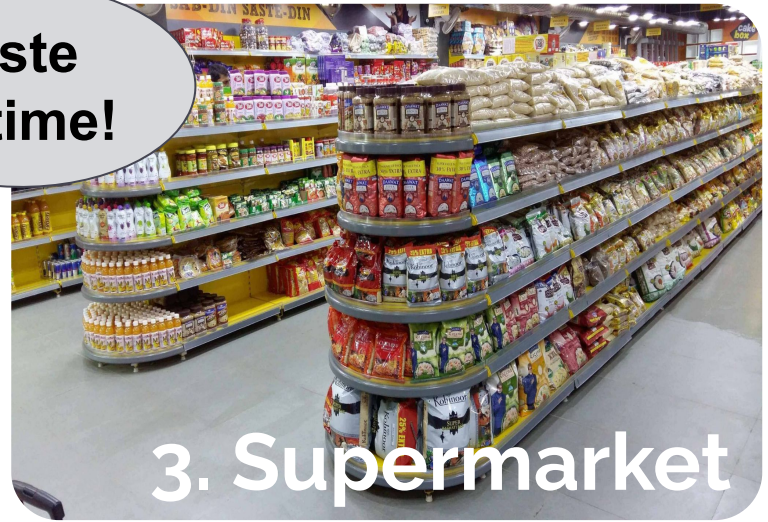
Let's see some  
inventory systems  
in different scopes

...

(Imagine Finding/Locating A Given Item  
From The Inventory)



Waste  
of time!



# Let's see some inventory systems in different scopes

...

(Imagine Finding/Locating A Given Item  
From The Inventory)





- Finding/locating items is a very common task that we all go through.
- Sometimes it's frustrating, time consuming, confusing, complex or impossible.
- This is a common problem in every field (such as agriculture, retail stores, laboratories, libraries, warehouses etc...) that consist of inventory management and storing.



- So, the solution is not the same to all the fields.
- Need to follow a specific approach to each field.
- But could model a generic solution, conceptually.

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### **3. PROBLEM INTRODUCTION (CE DEPARTMENT SPECIFIC APPROACH)**

# Specific problem we are trying to solve

- Computer Engineering Department has a quite a big Inventory consists of Tools, Equipments and Electronics that need to be Stored in an Ordered manner
- A system needs to be implemented to locate what's necessary, easily.



It would be difficult to locate an item in an environment like this

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## 4.GENERIC SOLUTION



# What's the best way to manage inventory

- Idea is to create a database that has the locations of the items that needs to be located
- It can be a 2D or a 3D matrix, so each item has two or three unique numbers that can be used to locate the item.
- from that 2D or 3D coordinate, it can further be developed to make it easy for user to locate the item



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## 5. DEPARTMENT SPECIFIC SOLUTION



# What can we do in our department

- In a 2D matrix two unique numbers can be used to locate the tool's desk and in that desk's specific position for the tool.
- A web Application has been suggested as a way to manage this.
- In primary level database will give the name of the table that tool is located.
- If more than one copies of the same tool is available it will show that as well.

- For a more convenient way of locating tools in the inventory, 2D matrix result from the database can be used to switch on two LED bulbs
- One for the specific desk and one near the specific tool in that table

a larger LED will be attached to show the Desk

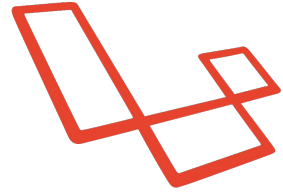


a LED will be set to each different tool

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## 6. HIGH LEVEL PLAN

- 
- PHP with Laravel
  - HTML + Bootstrap 4
  - Vue.js
  - GitHub and Project Management Tools
  - Agile Methodology



Laravel



GitHub





# Plan of Work

## Sprint 1 - Consumables

- Consumables -> LEDs, ICs, Resistors, Capacitors, etc..
- Models, Views and Controllers

## Sprint 2 - Database Design (Search function)

## Sprint 3 - Implement the Model and Controllers

- Search Model
- Search Controller



# Plan of Work

## Sprint 4 - Implement Views

- Admins View
- Users View

## Sprint 5 - Prepare Seeders(for tables in db) and Unit Testing

- Insert data about current locations of items
- Unit test every part of the added functionality

## Sprint 6 - Implementing AR (Augmented Reality) Solution

- Three.js + WebXR

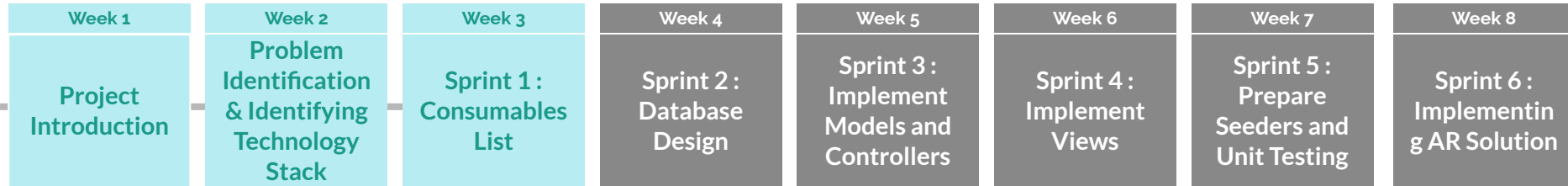


## 7. TIMELINE






# Timeline



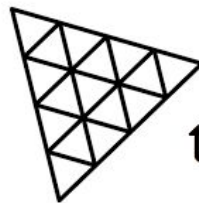
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## 7. Expertise of the group

- 
- FERNANDO K.A.I. ( E/18/098 ) - Database part (Models, Migrations, Seeders)
  - FERNANDO K.N.A. ( E/18/100 ) - Frontend Views, Routes
  - JAYASUNDARA J.W.K.R.B. ( E/18/155 ) - Controllers, Unit Testing

# Extendability

→ Integrate AR (Augmented Reality) for locating the items



three.js



WebXR

**Q & A**

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**Thank You!**

