# Agile Development

"Perfection is not attainable, but if we chase perfection we can catch excellence."

- **Vince Lombardi (NFL Hall of Fame)**

Raspberry Pi

# What are we doing here?

Over the next couple of days, we're going to be engaging in **product development**.

That's the process of going from an idea, to a design, to making something we can display or sell.

To do that, we're going to use a development methodology called 'Agile': Agile is the standard method of development in many tech industries and is done by most software and technology companies the world over.

# Agile Development Is…

Agile can be summarised very briefly:

1. Only work on the most important things at any given point in time
2. Break those things into small bite-sized tasks for individuals to work on autonomously
3. Catch up regularly on progress to work out what is important *now* and change the plan to adapt if you need to
4. Make something simple that works first, then add to it or change it into something better over several steps

# How does Agile work?

- Your time at the hackathon is divided into small chunks of dedicated working called 'sprints'. Each sprint is 90 mins.

- Everyone will have a specific role to play during each sprint, which we will rotate each time. Everyone will end up doing every job by the end of the Hackathon.

- At the beginning of each 90 minute sprint, your Start-Up will meet and discuss whether you need to change the plan for the upcoming sprint, and assess how your progress is going. These meetings are called 'Stand-Ups' and they are really important!

# How does Agile work?

- At the very beginning, your entire project will be broken down into each individual job and put on **'tickets'** that will need to be done before you are finished. This pile of jobs is called the **'backlog'**, and it is displayed on your **Kanban board** - this is how we keep track of what has been done, and what still needs doing.

- During the sprints; as you undertake each task in your 'backlog', move the ticket for that task from the 'to do' column on your Kanban board to the 'doing' column. When you have finished the task, move the ticket to 'done'.
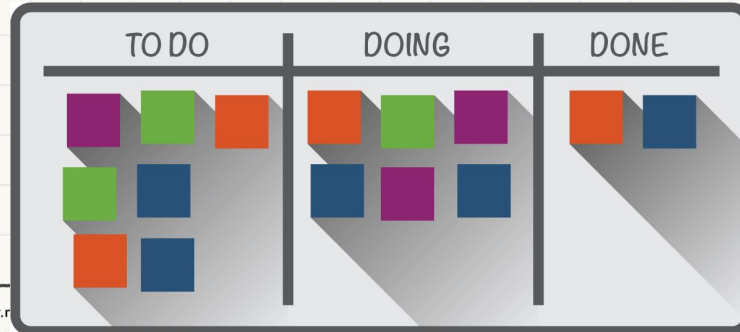
# How does Agile work?

Toward the end of your project, you will need to start thinking about your 'pitch' and organising your resources to **create a 2 minute presentation explaining your project and your company story**.

Your pitch will be delivered to the whole group and (maybe a panel of 'Dragons') at the very end. **Everybody** has to say something.

We will have a special Stand-Up to discuss, plan and create your presentation during the process.

# Roles and Responsibilities

There are four roles which we are using in our Agile development Cycle:
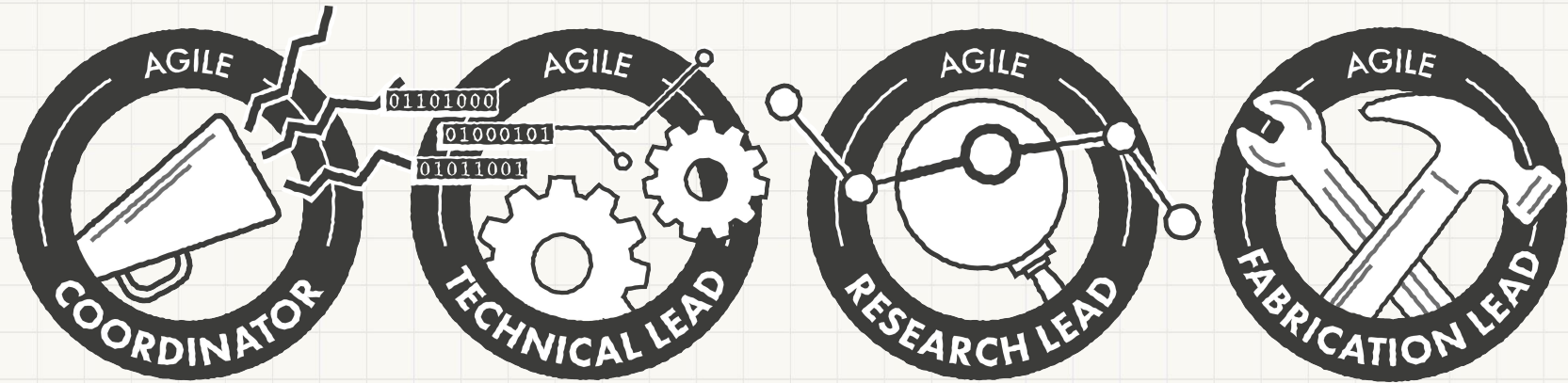
# Coordinator

**"Make sure everyone has what they need to succeed."**

- In charge of managing planning and workload requirements and external communications

- Responsible for chairing the start-up at the beginning of sprints

- Responsible for managing workload and resource allocation for sprint

- Should lend a hand and 'get your hands dirty' if experiencing time pressure, complications or workload shortages

- Responsible for seeking outside help and communicating issues to Facilitators

AGILE
COORDINATOR
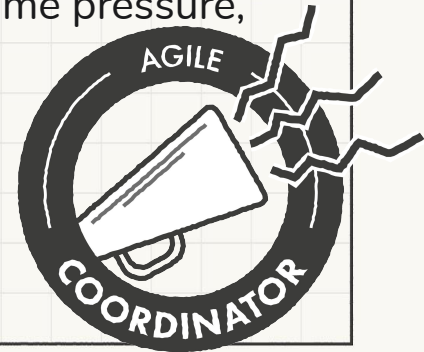
# Technical

**"Get the guts of the product working."**

- In charge of wiring, coding and creating the internal workings of the device, according to the plan
- Responsible for bringing any technical issues or questions to the Co-Ordinator
- Work closely with the Research person to find new solutions and work through the backlog of tasks
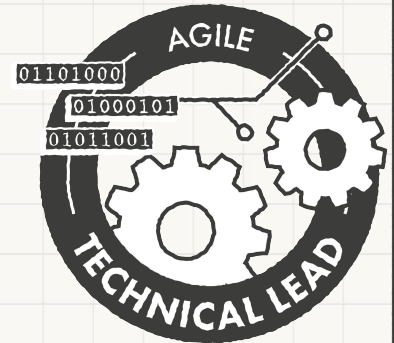
# Research

**"Identify and troubleshoot technical difficulties, find alternate solutions, and implement these."**

- In charge of finding new solutions and answers to technical questions using google and online resources
- Responsible for helping Technical Lead implement complex solutions where necessary and find answers online
- Responsible for liaising between Technical and Fabrication roles to ensure that the interface/housing will work and fit the device
- Can be used as flexible workforce if experiencing time pressure, complications or workload shortages.

AGILE

RESEARCH LEAD

# Fabrication

**"Make the interesting, colourful, and structural parts of the product that people see, touch, and use."**

- In charge of creating the physical, interfacing, art and craft portions of the project
- Responsible for collecting and organising materials and components necessary for the project
- Work closely with the Research Lead to make sure that what they are building is fit for purpose

# The Agile Airplane Game

We're now going to play a game that will give you an idea of how Agile is meant to work in practice.

<u>The rules are pretty simple:</u>

1.  Your team's objective: make as many planes as you can per 4 minute sprint with the paper provided. Each srpint has 1 minute of planning time where nobody can make **anything**
2.  Each plane your team makes that 'passes' the assessment earns you points.
3.  Beginner planes are worth 3 points, Intermediate planes are 5 points, Advanced planes are 10 points.
4.  Everyone must have a role listed above in the sprints, and will rotate each sprint.
5.  The **only** people allowed to make planes are Technical and Fabrication.
6.  Research and Co-Ordinator may: check plans, offer encouragement and communicate with people outside your team, **but not touch the paper**.
7.  All planes turned in must be colour coded (marked) correctly or will not be accepted:

<span style="color:blue">Blue - Beginner</span>, <span style="color:green">Green - Intermediate</span>, <span style="color:red">Red - Advanced</span>

# Agile Wrap-Up

Hopefully, you all got an idea of how we can iterate and adapt using Agile!

That was just a small (but very intense!) taste of the Agile Development Cycle, but it should help you understand a bit more about how each role works.

**Take 2 minutes now to discuss with your team about the sprints and how you felt about undertaking each - did changing roles make you feel uncomfortable or stressed? Did you make a new plan each time?**