MODULE 7: DEVELOPING AN MVP FOR YOUR ORGANIZATION

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Topics

- Future of Autonomous Robots and Vehicles in Industry Transformation

- Design Considerations

- Development Process for Autonomous Robots and Vehicles

Introduction

- This module is to train and teach participants to design and implement an autonomous robot MVP for real world applications

- Robotic professionals need to identify proper pain points and design considerations in order to tackle to ensure success

Future of Autonomous Robots and Vehicles in Industry Transformation

Self-chauffeured cars

- Drop-off, self-park, pick-up on demand
- Valet mode

Driver assist/semi-autonomous

- Lane deviation prevention
- Collision prevention
- Localized path planning in heavy traffic

https://www.alphr.com/cars/1001329/driverless-cars-of-the-future-how-far-away-are-we-from-autonomous-cars

Future of Autonomous Robots and Vehicles in Industry Transformation

Inspection and repair drones
- Pipes, buildings, ships, towers

Development Process for Autonomous Robots and Vehicles

Look for:

- Daily pain issues (no pain, no interest)
- Revenue generating or manpower/cost saving opportunities

After identifying, ask yourself these questions:

- Can the problem be solved with other cheaper alternatives than using robots?
- Will robotics result in cost or manpower savings in the long run?
- Will it infringe any company IT policy or ethical policies?
- Will it cause inconvenience in any way?
- Is it cheap and worth the time to try out?

Development Process for Autonomous Robots and Vehicles

Design

- What is its purpose? And design/constraint factors to consider?

- What is the technical requirement?

- Info about required hardware and software components?

- Components integration plan and tools?

- Robotic flow process (see next slide)

Production

- Assembly requirement and process?

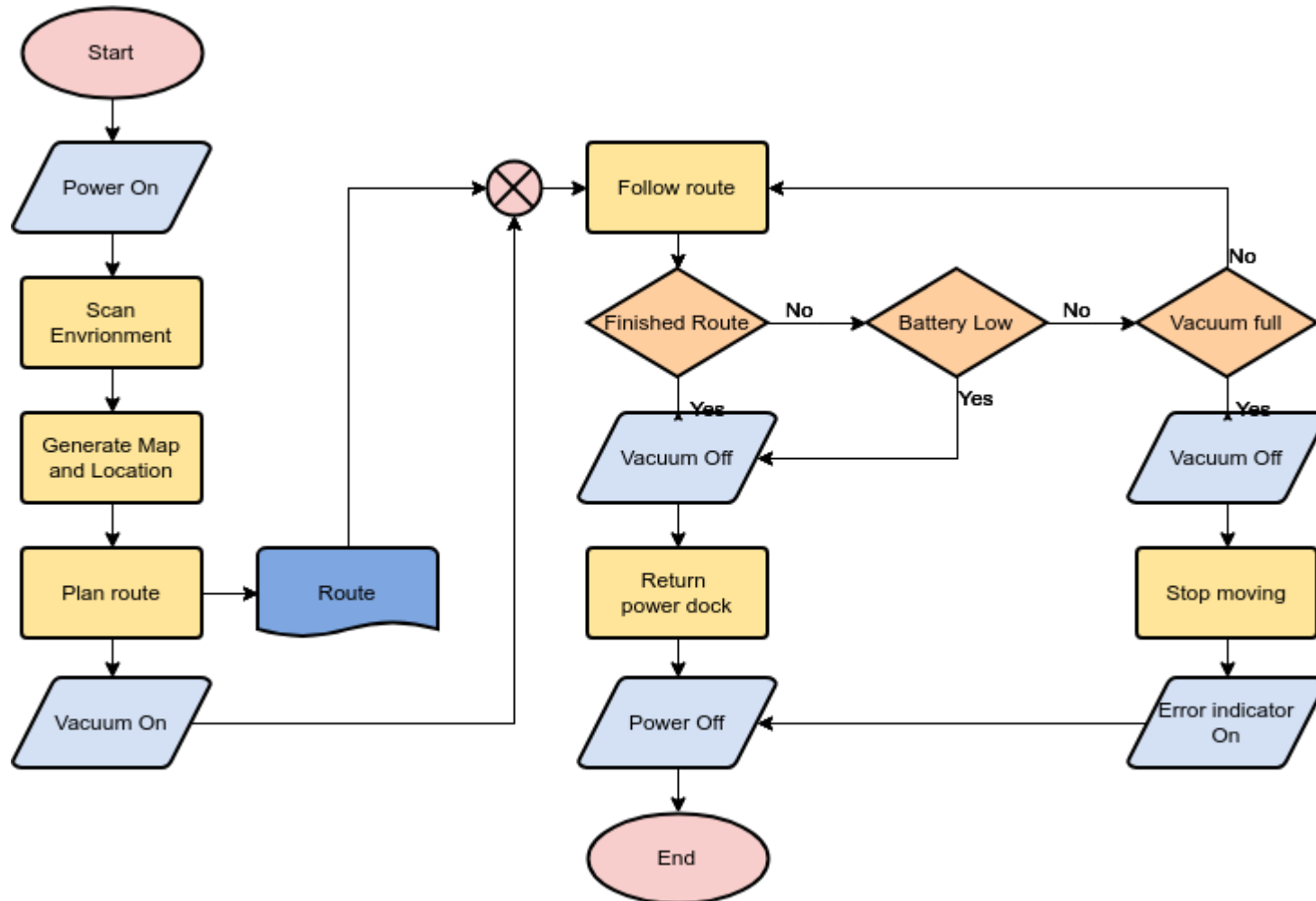- Diagnosing of issues during prototyping or production

Service

- Maintenance requirement and monitoring?

- Reliability issues and Mitigation Plan?

- Safety and Security Risk and Mitigation Plan?

Focus

** Use the pointers as a guide only. Need not follow everything.

Autonomous System Flow Process Example (RECAP)

Homework

- **Prepare a real autonomous robotics implementation plan** specific to your work place or identified use-case

- Include all the points discussed in the previous few slides [e.g. **system architecture** (covered in M2), **system flow process** (see previous slide)]

- **To be presented and submitted on the 5th day**

- **10 minutes presentation** (around 10 slides) and 5 minutes Q&A per person

- Have more graphics/charts/figures than words

- PowerPoint-based
  - Use template provided

Proposal Structure Example

- **Introduction & Business Case; e.g.**
  - ➢ What pain point(s) do you want to address?
  - ➢ Aim to generate revenue generate or manpower/cost saving or both?

- **Implementation Plan; e.g.**
  - ➢ Required sub-systems,
  - ➢ Required hardware and software

- **Detailed Design:**
  - ➢ System architecture and/or
  - ➢ System flow process

- **Product Visual Illustration**
  - ➢ Rough sketch of product with the labelled components.
  - ➢ Pinpoint where the various hardware should be located within the prototype

Please upload all your works in CANVAS → Assignments → ARV Module 7 Presentation Submission

(Each representative per group to submit)

End of Module 7