

CREATING A PRODUCT PROTOTYPE





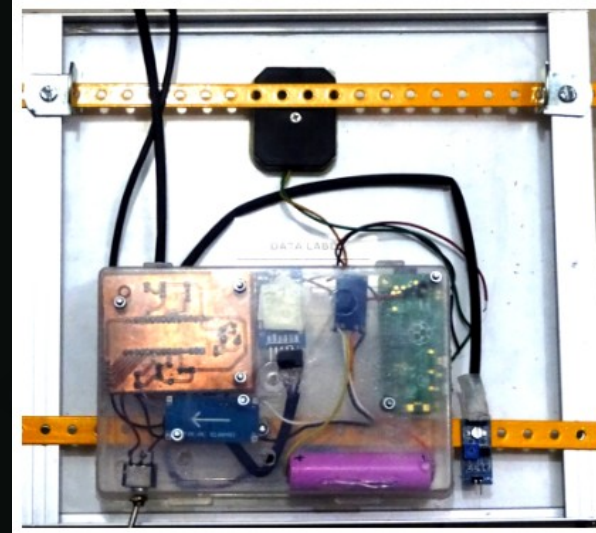
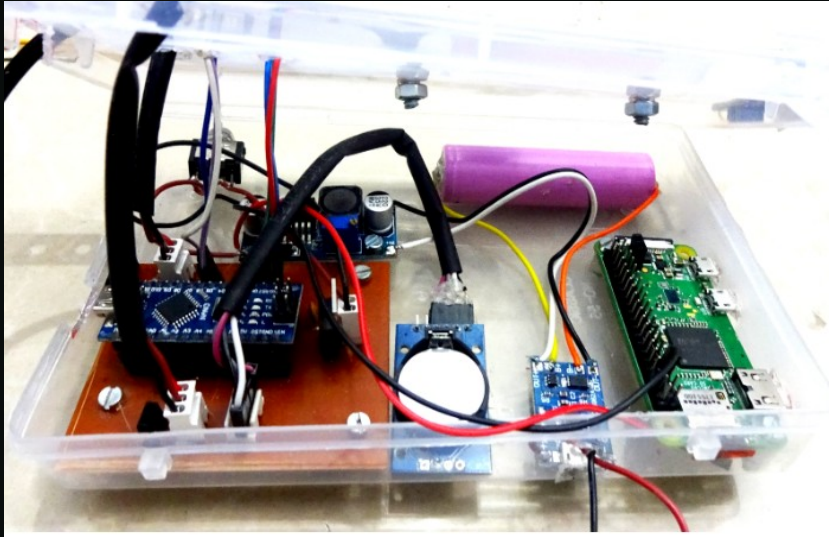
INTRODUCTION

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MY FIRST IOT PROTOTYPE (YEAR – 2017)



SMART FARM MONITORING



GOALS

- R&D mindset for rapid prototyping
- IOT system key features
- How to put boundaries to the project
- What's New in Rapid Prototyping and Desktop Manufacturing Solutions?
- How to develop your first product prototype
- Manufacturing perspective
- Design aspect



Key takeaway

- Getting started with IOT product development
- Managing project
- Skills that you need to develop prototype



R&D Mindset

- Research and Development (R&D) professionals in high-technology industries are required to make decisions in a complex and uncertain environment.
- Such an environment calls for professionals who are able to face up to and manage technical challenges, and to deal with the high cognitive load.
- It also requires individuals who are able to deal with interpersonal challenges and drive the development of new ways to innovate.



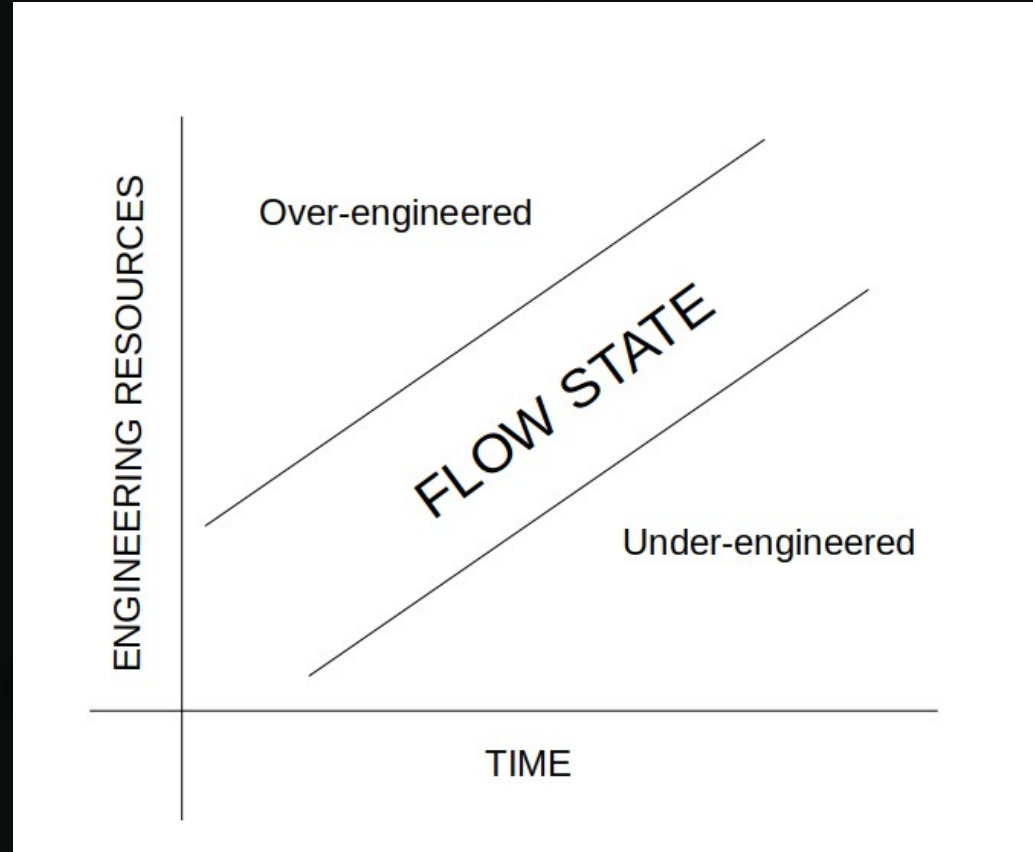
IOT system key features

- Connectivity
- Sensing
- Interoperability
- Security
- Upgradeability
- Scaling
- Custom features of your choice



How to put boundaries to the project?





How to develop your first product prototype



- Microchip
- Nxp
- Silabs
- Texas instruments

- White boxing
- Black boxing
- Bin hacking
- Try to destroy it

Idea

Development board
prototype

PCB
PROTOTYPE

TESTING

Enclosure
Design

- Digikey
- Mouser
- Arrow electronics
- Texas instruments
- SP ROAD

- Kicad
- Eagle
- Lion circuits
- JLC PCB
- SP ROAD

- Solidworks
- Autodesk
- Use thermocol
- 3D printer
- CNC MACHINE



What's New in Rapid Prototyping and Desktop Manufacturing Solutions?

- Use of development boards
- Design logic of your firmware
- Testing your features in modules and then combining them into one
- Extensive testing of your hardware
 - Over volting your hardware
 - Undervolting your hardware
 - Different test conditions
 - Tests in different environments
 - Software memory management
 - Bin/assembly auditing your own software
- Use of Desktop size 3D printers and cnc machine

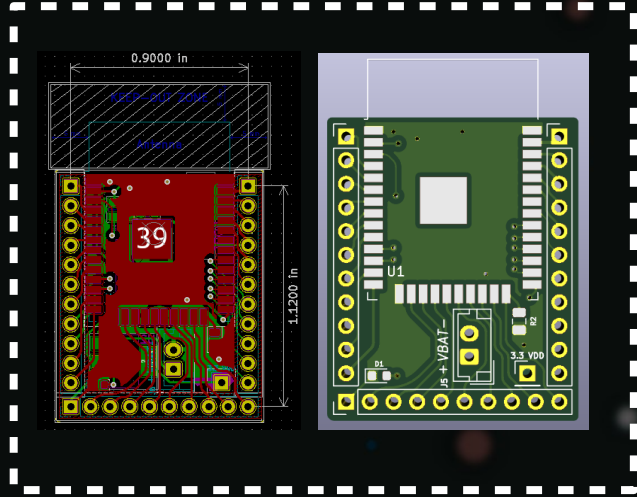


What's New in Rapid Prototyping and Desktop Manufacturing Solutions?

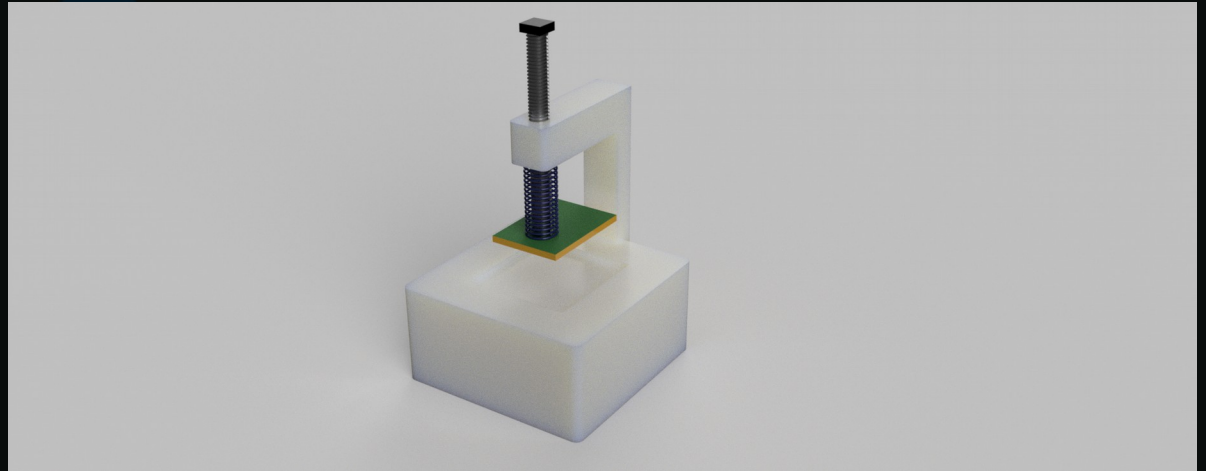
- Moving on perf board and starting iterative process
- Designing and Optimizing your pcb design
- Testing your pcb Design
- Combining your software and hardware in single package
- Creating machine which can do testing for you !

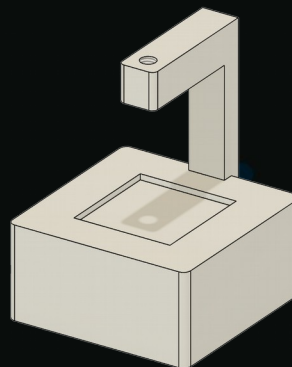
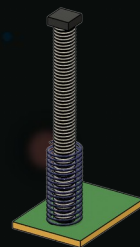
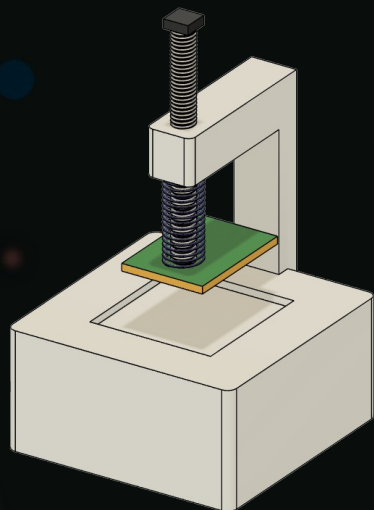


EXAMPLE OF TESTING JIG



CUSTOM JIG







Source that accelerates software side of your product development



DATASHEETS



E2E™ support forums > Forums



Build Upon what is existing



Manufacturing perspective

- Think as a manufacturer to decrease the number of prototype iteration
- Design prototype keeping a track of design manufacturing
- Manufacturing can control the cost factor
- Research your manufacturing process while prototyping



DESIGN ASPECT

- MARKET likes what they see and what it costs
- Making your product prototype appealing, design it with keeping yourself as a consumer
- Everybit of your prototype should have purpose on its own
- KEEP it simple !



After doing this process what will be the results?



THANK YOU

You can find me at



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Pratik Mokashi

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