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# HEPTA SAT TRAINING



The background is a close-up, grayscale photograph of a printed circuit board (PCB). It features various electronic components, including integrated circuits and surface-mount components. A semi-transparent rectangular box is overlaid on the right side of the image, containing the title and a list. The PCB has labels such as 'NXP', 'LPC1114', and a series of pin headers labeled 'p24' through 'p30'. A logo for 'Nihon- Univ. Hepta' is visible on the board.

# INTRODUCTION

- About HEPTA Sat
- Training process
- Mission
- Results
- Demonstration
- Conclusion



# ABOUT HEPTA-SAT

## DIMENSIONS

- Comparable to a CubeSat

## COMPONENTS

- Command & Data Handling Board (CDH)
- Electric Power System & Comms Board (EPS & Comms)
- Sensor Board

## PROGRAM GOALS

- Provide an understanding of the basic architecture of a small satellite
- Experience the development process
- Teach basic space systems engineering in a few days



# TRAINING PROCESS

LAB  
#1

- Programming of the On-Board Computer

LAB  
#2

- Electrical Power Supply System (EPS)

LAB  
#3

- Command & Data Handling (CDH)

LAB  
#4

- Sensor subsystem

LAB  
#5

- Communication and Ground Station

LAB  
#6

- Structure and integration



# MISSION: LAB #7

CAMERA  
PICTURES

DEFINING  
SPECIFICATI  
ONS OF  
PAYLOAD

BEAMING  
COMMANDS  
BY LASER



# MISSION: LASER SIGNALLING PROCESS

POINTIN  
G

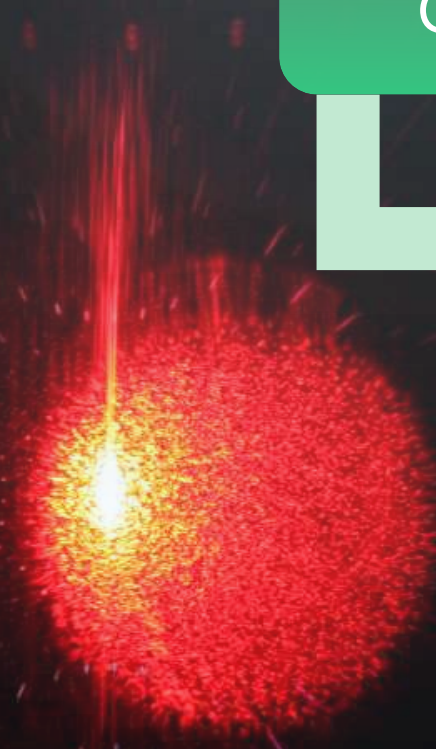
- Satellite light sensor receives laser signal from pointer

READIN  
G

- Controller confirms the signal source is a laser pointer

FEEDBA  
CK

- Satellite LED confirms receipt of message





# RESULTS

Successfully demonstrated a basic laser communication capability

Used basic HEPTA-Sat codes to program LED response

Proved excellent educational value of the HEPTA-Sat program



# CONCLUSION

- The HEPTA-Sat training has provided great practical insight into space systems engineering
- It also provided an opportunity to create a useful mission concept
- It significantly improved the skills of the participants and the benefits to those involved.





THANK YOU!