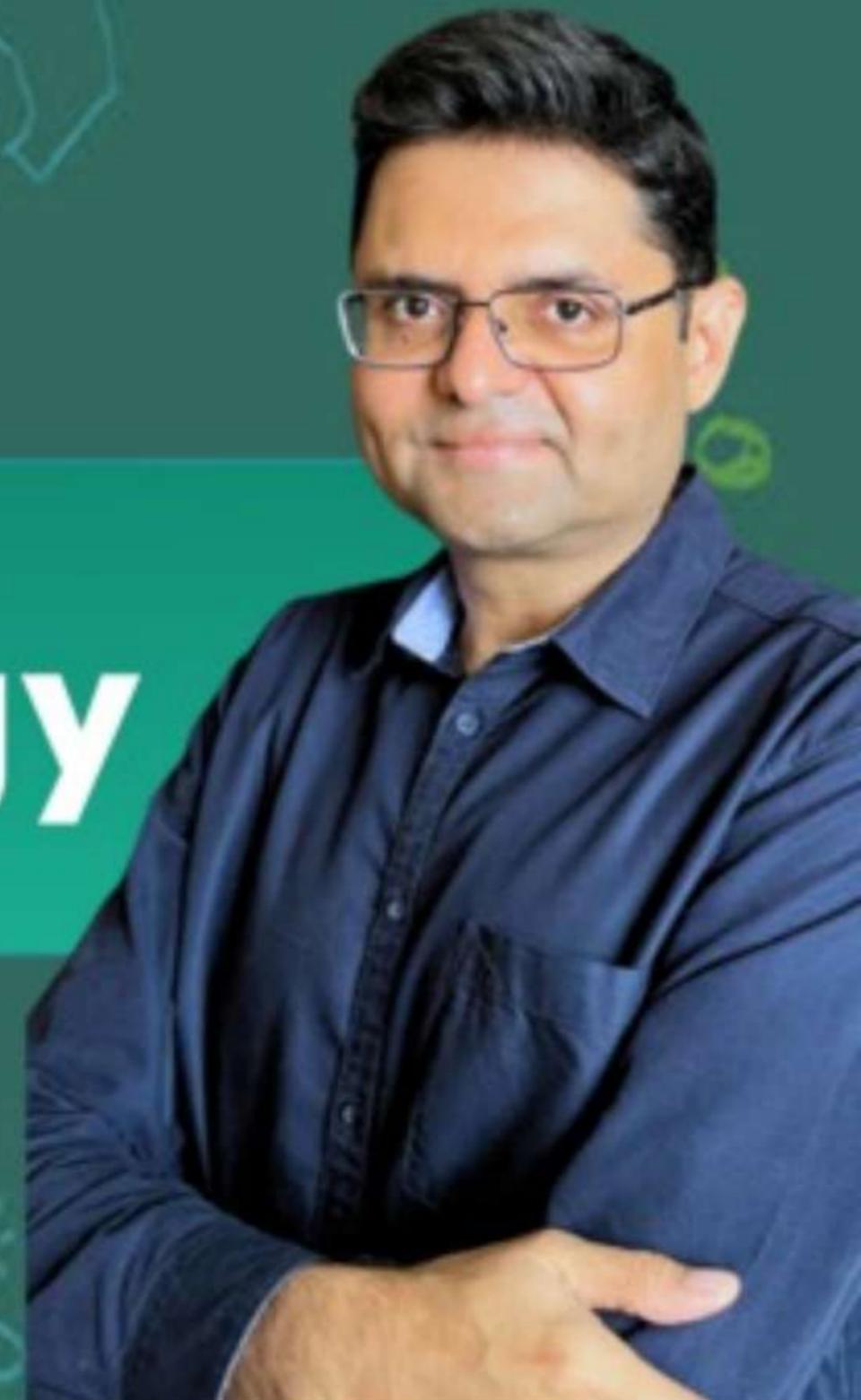


Science & Technology

By Dr. Abhishek Sir



Space Observatories

Located in a specific space orbit (depending on the purpose)

Space Telescopes

a tool/system to observe far-away

2 types

Optical

- based on glass lenses
- Capture only light

wide-spectral

- ↳ Captures
 - ↳ Light
 - ↳ X-ray
 - ↳ UV-rays
 - ↳ IR rays

objects

Phenomena

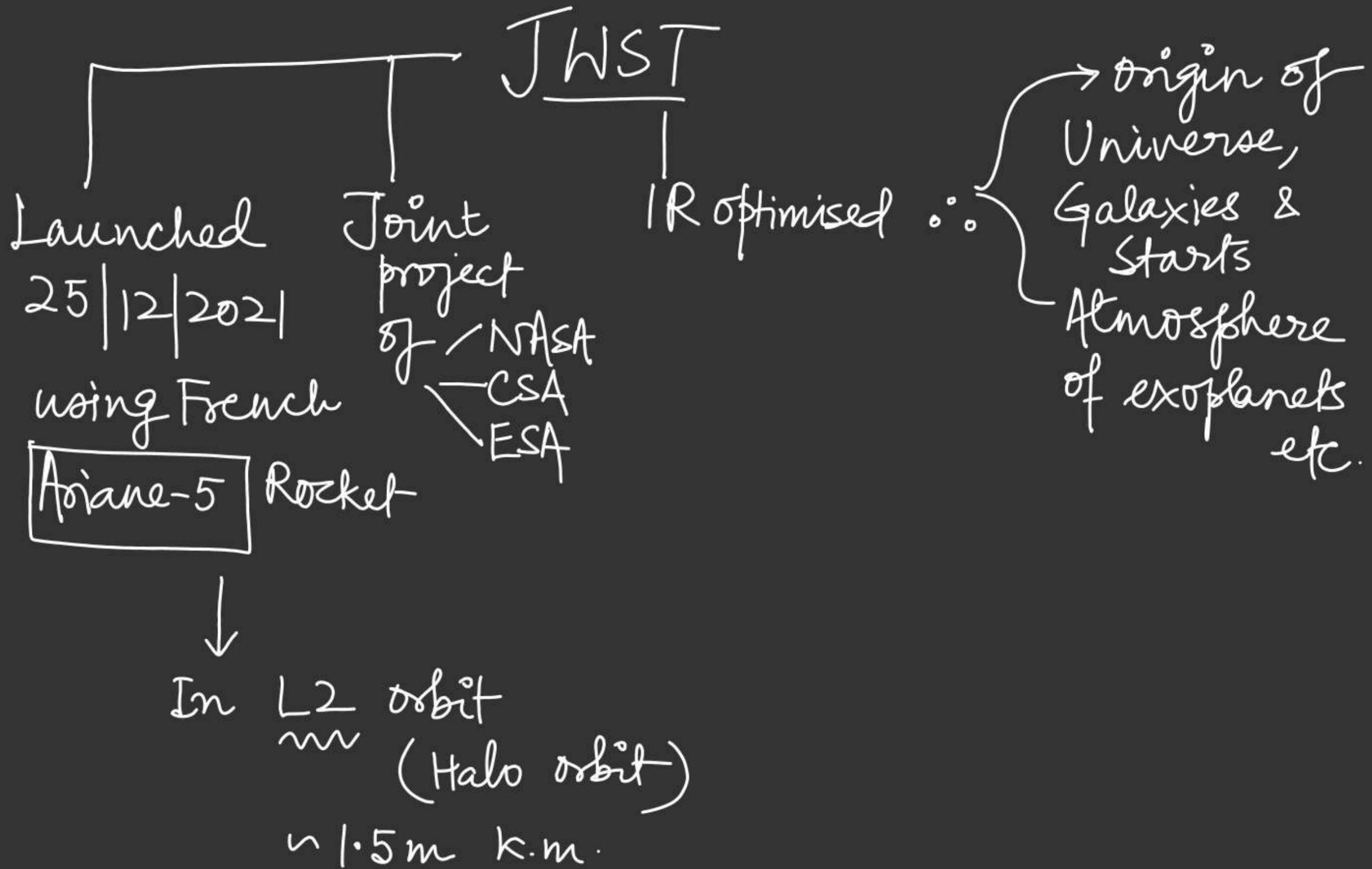
ids
t
ation

(2) Avoid
light
pollution

er images
celestial objects
phenomena

(3) Wider
spectral
sensory range
(since, not dependent
on glass lenses
& eyes as sensors)

(4) Continuous
observation

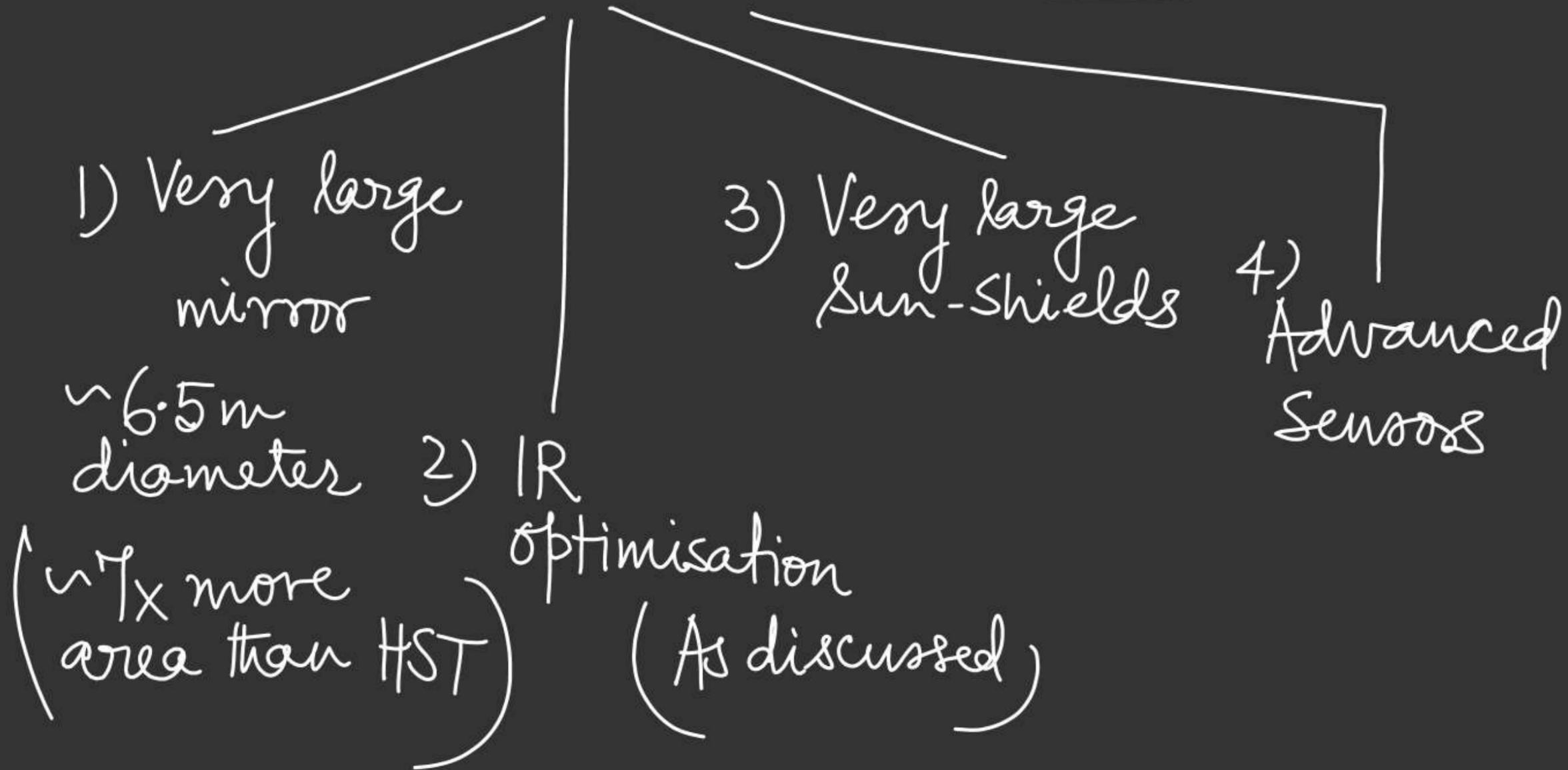


(3) Mid-IR Instrument
(mid-range IR,
far away Celestial
bodies)

& Physical
Properties
of Celestial
objects

(4) Fine Guidance Sensor → assists in
targeting &
tracking

4 unique advancements



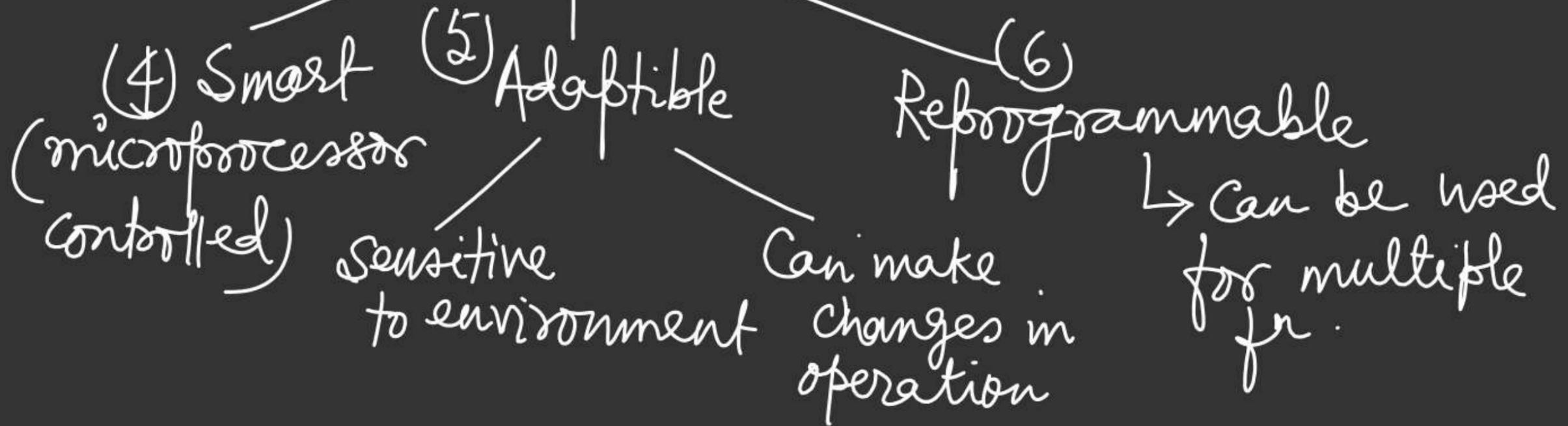
Scope

- (1) Study of origin of the Universe
- (2) Study of formation of stars and Galaxies
- (3) Study / Discovery of exoplanets
- (4) Large scale celestial phenomena

ROBOTS & ROBOTICS

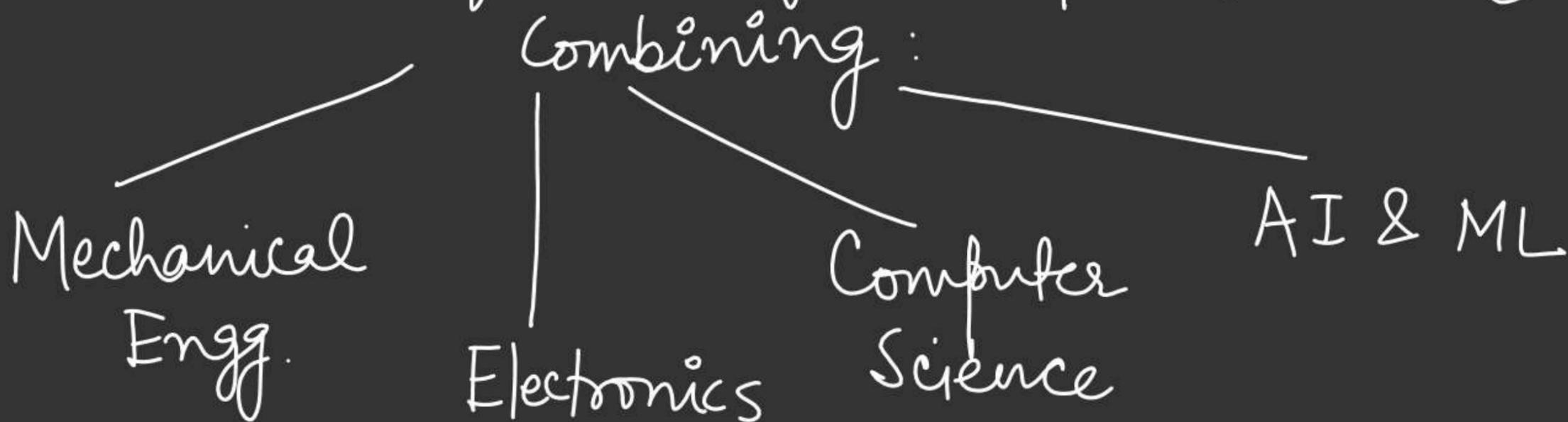
Robots

(1) Automated (2) Complex (3) mechanical +
electronic system which are:



Robotics

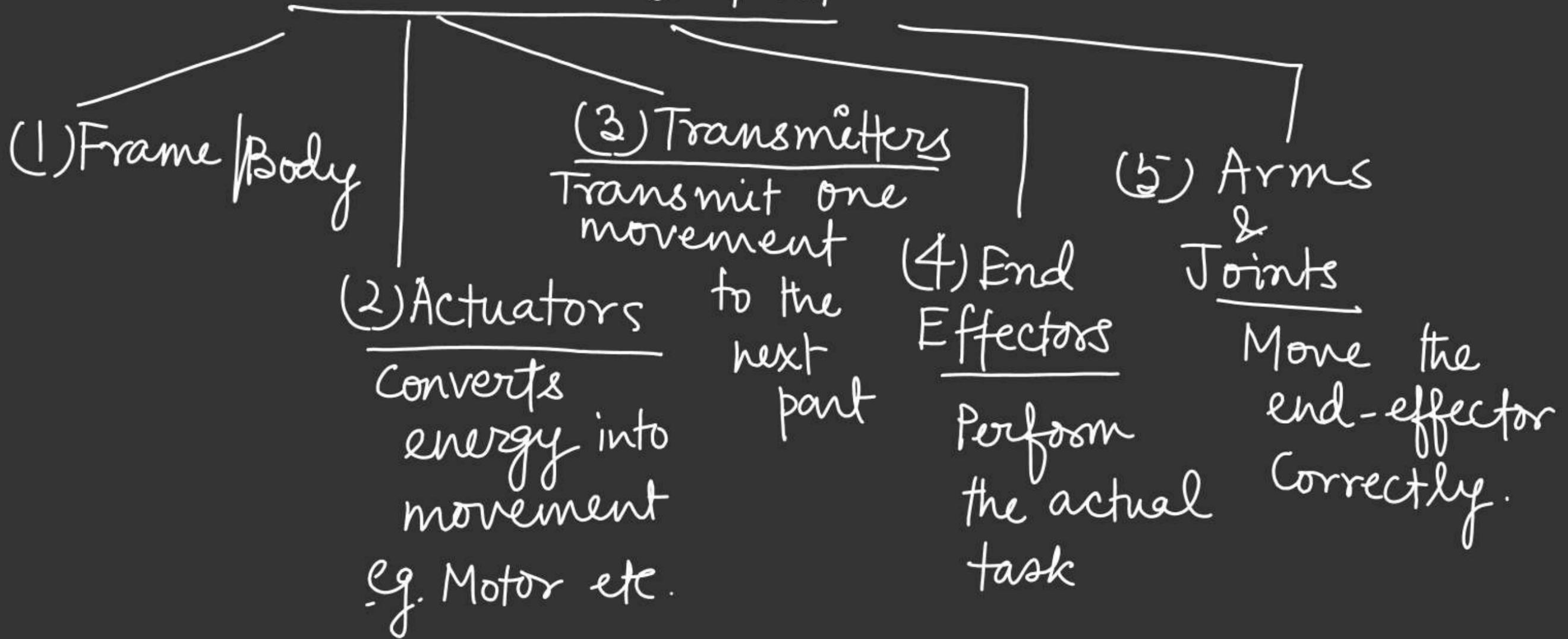
An integrated field of engineering



In which → Robots are developed & studied

Parts of a robot

(1) Mechanical Part



Microprocessor

External
Computer
based

may be an
additional feature

on-board
(Always
present)

AC source

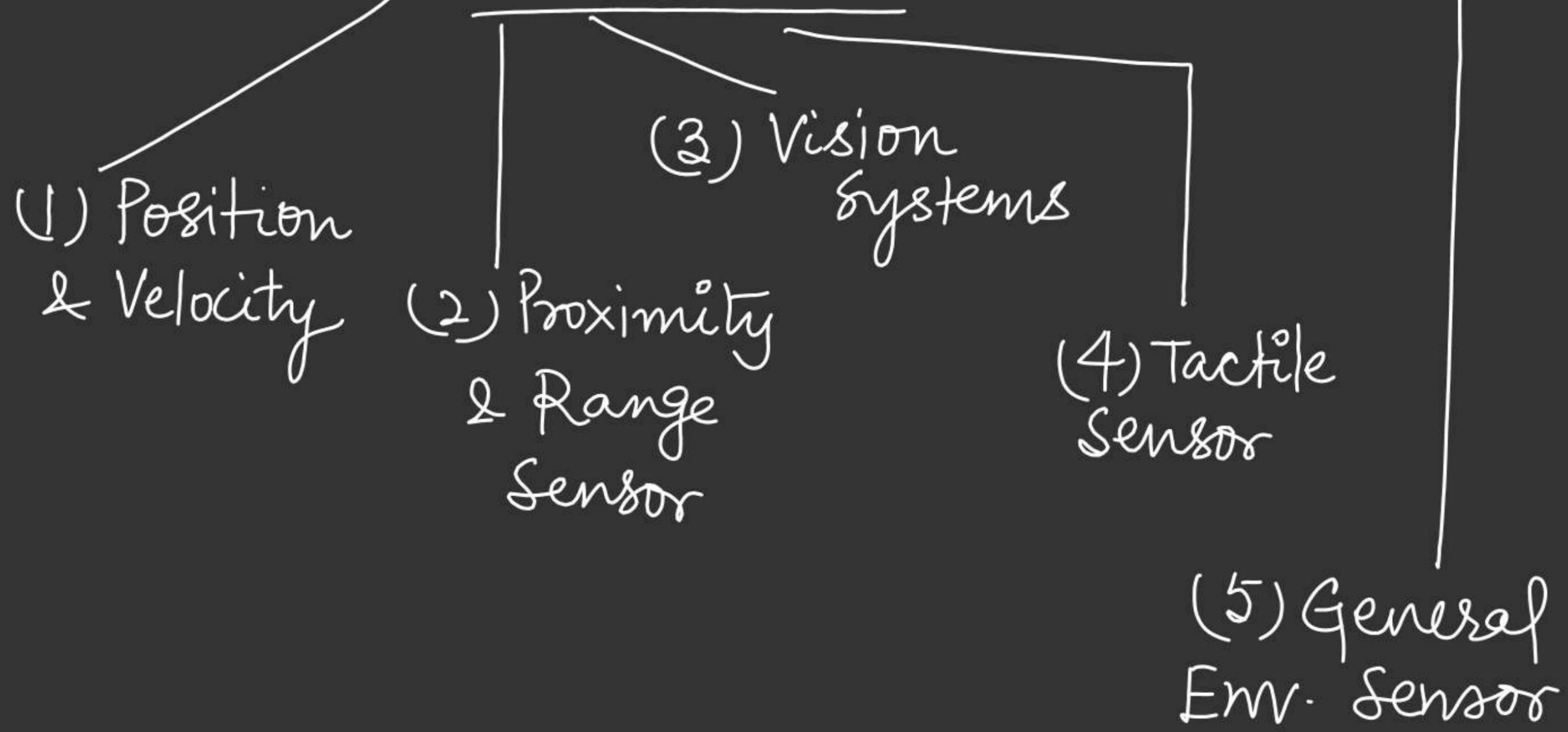
↳ good for
static robots
+ those which
need high
energy

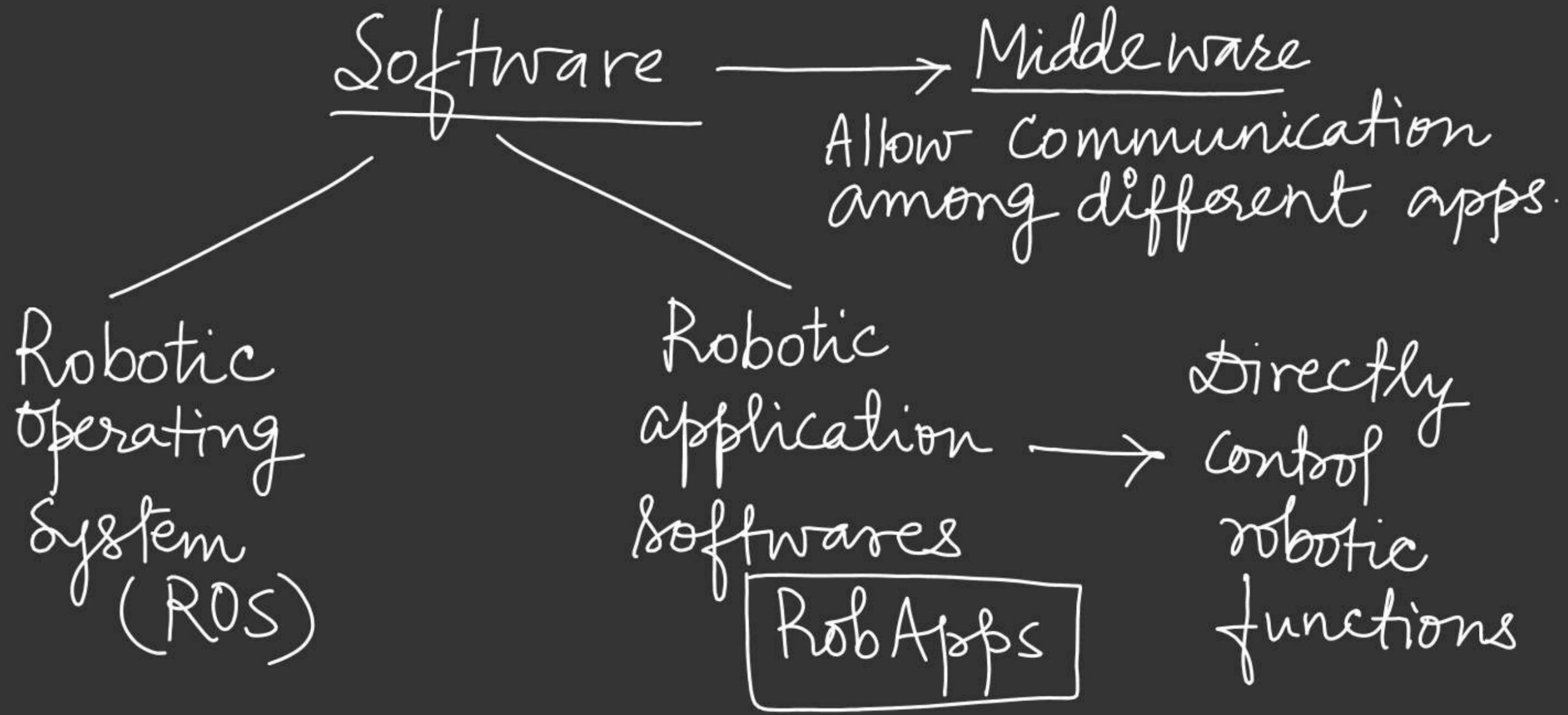
DC (on-board)

for Moving Robots

Solar Panels

In addⁿ to DC
source → for
outdoor robots





Software Interface

→ Apps on
Computer / mobile
devices

Hardware Interface

→ Switches

→ Buttons

→ Joysticks

→ Touch Panel etc.

Communication Systems

Wired

Wireless

- WiFi
- Radio Frequency
- Bluetooth

Emergency Systems

Emergency
Stop

Collision
Prevention

Woebots

y

Handling
→ Explosive Handling
→ Space Robots etc.

(1) Hazardous
Tasks

(8) Better elderly/
child/patient care

(9) Better security systems

(10) Better mobility
solutions

Limitations

(4) Expensive

(1) Job loss

(2) Potential
of n se
& we, onisat

(3) Uncertain
future of
AI autonomous
robots

S

