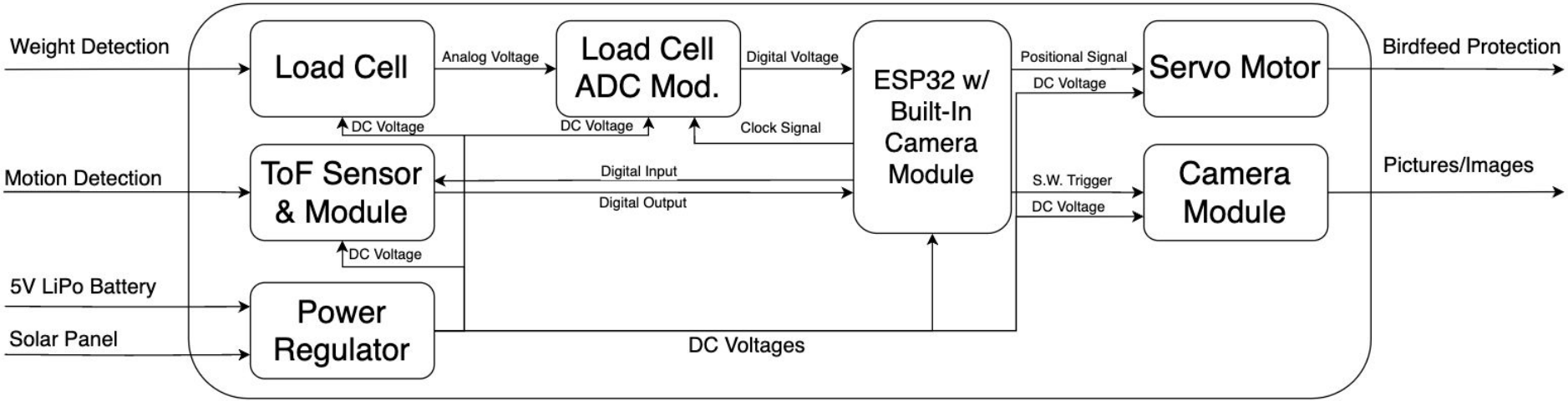
Anti-Squirrel Birdwatch & Feeder: Level 0

Module	Anti-Squirrel Birdwatcher & Feeder
Inputs	Animal Motion Detection
	Animal Weight Detection
	Power: Battery + Solar
Outputs	Pictures/Images: Stand-alone pictures of birds
	Birdfeed Protection: Prevents non-birds accessing feed supply
Functionality	Provides birds with feed, detects their presence to capture photos, and detects whether the feed consumer is a bird or a squirrel/other.

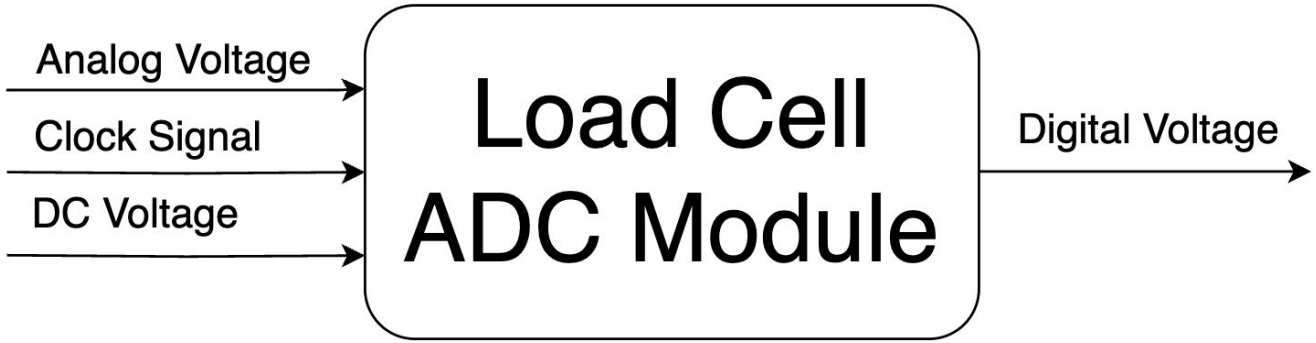
Anti-Squirrel Birdwatch & Feeder: Level 1



Load Cell: Level 1

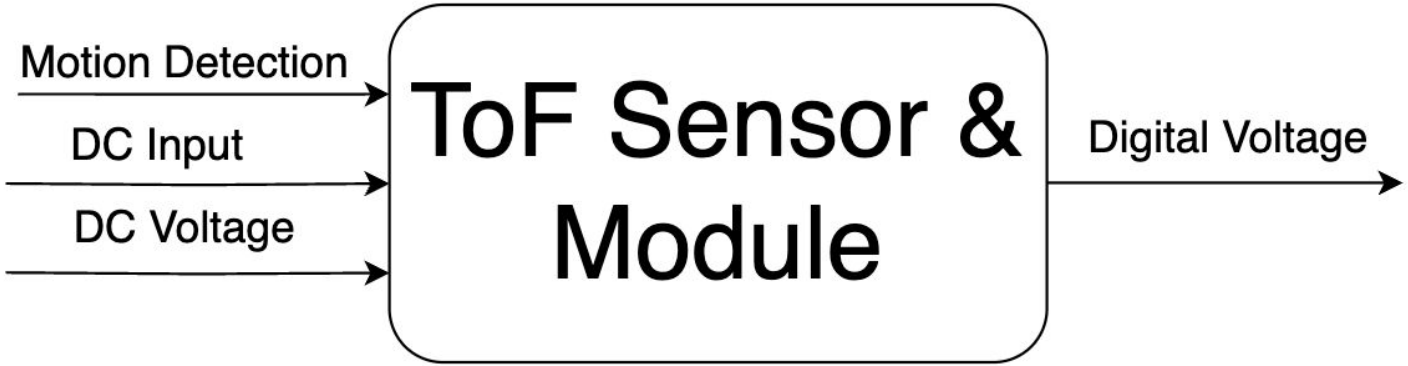
Module	Load Cell
Inputs	Animal Weight Detection
	DC Voltage
Outputs	Analog Voltage
Functionality	Detects changes in weight as determined by voltage drop across a variable resistance that changes as the the cell physically changes.

Load Cell ADC Module: Level 1



Module	Load Cell ADC Module
Inputs	Analog Voltage from Load Cell
	Clock Signal from ESP32
	DC Voltage
Outputs	Digital Voltage
Functionality	Converts the analog output voltage from the load cell into a digital signal that can be read by the ESP32 on each clock pulse.

Time of Flight Sensor Module: Level 1

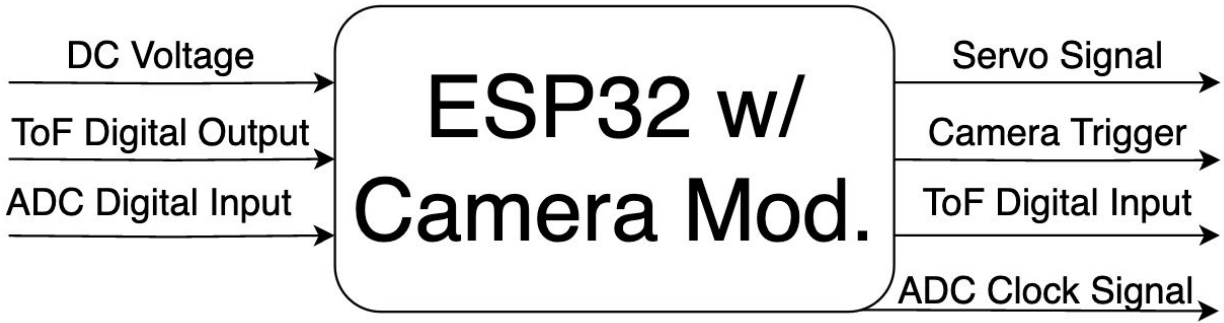


Module	Time of Flight Sensor and Module
Inputs	Motion Detection
	Digital Input from ESP32
	DC Voltage
Outputs	Digital Voltage
Functionality	Uses integrated IR circuitry to detect when an animal is within our desired range and outputs a digital voltage to the ESP32.

Power Regulator: Level 1

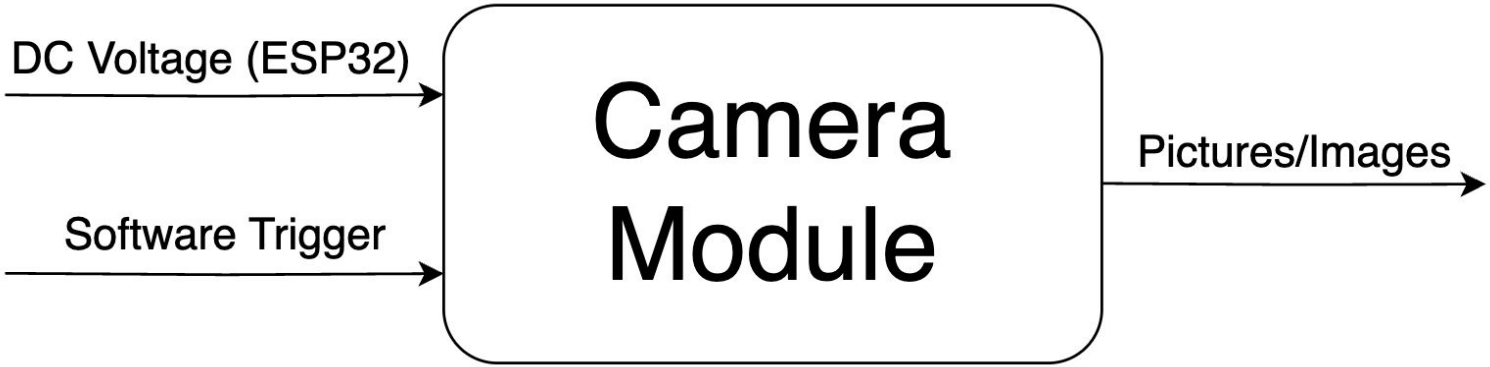
Module	Power Regulator
Inputs	5V LiPo Battery
	6V Solar Panel
Outputs	DC Voltage
Functionality	Takes in 5V LiPo battery output and 6V Solar Panel output and regulates steady DC voltage to power electronic components.

ESP32 w/ Built-In Camera Module: Level 1



Module	ESP32 w/ Built-In Camera Module
Inputs	DC Voltage
	ToF Digital Output
	ADC Digital Input
Outputs	Servo Signal
	Camera Trigger
	ToF Digital Input
	ADC Clock Signal
Functionality	Takes in multiple signals from our input subsystems and generates appropriate output signals for each of our output subsystems.

Camera Module: Level 1



Module	Camera Module (built into ESP32)
Inputs	DC Voltage
	Trigger Signal from ESP32
Outputs	Bird/Squirrel Images
Functionality	Takes a picture when an animal is detected and stores the image.

Servo Motor: Level 1

Module	Servo Motor
Inputs	DC Voltage
	Positional/Control Signal from ESP32
Outputs	Mechanical Movement
Functionality	To move the cover attached to the servo over the open birdfeed when signaled by the ESP32, acting as a barrier to prevent squirrels and heavier animals from accessing birdseed.