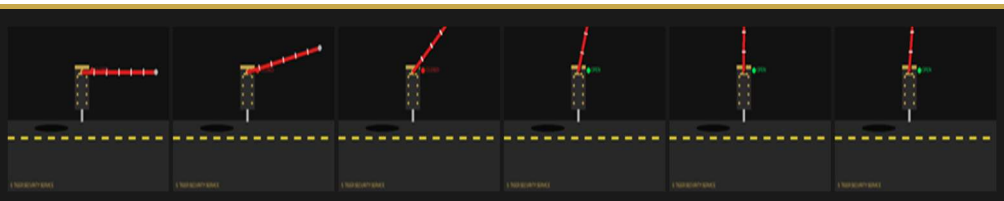
Boom Barrier Controller

Technical Datasheet



Boom Barrier Operation Sequence — Closed → Opening → Fully Open → Closing → Closed

1. Product Overview

The Boom Barrier Controller is a smart access control system designed for automated vehicle entry and exit management. It integrates HybrID™ technology with RFID-based authentication, ANPR, vehicle detection sensors, and cloud connectivity for real-time logging and reporting. It logs both authenticated and unauthenticated vehicles, and AI can be trained to record various attributes, including the colour and model of vehicles. Additionally, it can flag and notify administrators about vehicles of interest and log timestamps. The underlying AI can be trained based on custom requirements and respond to contextual significance.

2. Key Features

- **RFID Authentication:** Supports UHF RFID reader for secure access control.
- **Loop Detector Integration:** Detects vehicle presence to automate barrier operation.
- **IR Beam Sensor:** Ensures safety by preventing accidental barrier closure.
- **Cloud Connectivity:** Logs entry/exit data and generates daily reports.
- **Advanced Microcomputer Based Controller:** Ensures efficient processing and wireless connectivity.
- **Blacklist/Whitelist Management:** Configurable access permissions.
- **Multiple Communication Interfaces:** UART, GPIO, Wi-Fi, and Ethernet (optional).
- **ANPR Camera:** Automatic Number Plate Recognition through a wide-view angle camera.

3. Technical Specifications

Parameter	Specification
Microcontroller	32-bit RISC Processor, Dual Core @ 240 MHz, 4MB Flash RAM, 512KB RAM
RFID Reader	Physical switch and Remote controller inputs for Boom Gate Open/Close/Stop
Loop Detector	Wide-angle IP camera input over Ethernet for ANPR
Photo Sensor	UHF RFID (ISO 18000-6C)
Connectivity	Inductive Vehicle Detection
Power Supply	IR Beam Sensor

Parameter	Specification
Operating Temp.	Ethernet, GSM, Wi-Fi, UART, GPIO
Enclosure	+12V DC / +24V DC

4. System Block Diagram

Connectivity	Inductive Vehicle Detection
Power Supply	IR Beam Sensor
Operating Temp.	Ethernet, GSM, Wi-Fi, UART, GPIO
Enclosure	+12V DC / +24V DC

4. System Block Diagram

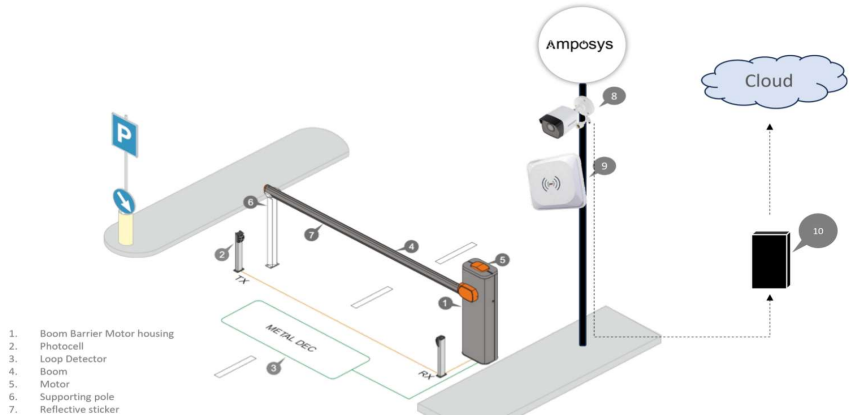


Figure 1: BBC-ESP32 System Block Diagram

Ref.	Component
1	Boom Barrier Motor Housing
2	Photocell
3	Loop Detector
4	Boom
5	Motor
6	Supporting Pole
7	Reflective Sticker
8	High Resolution ANPR Camera
9	UHF RFID Radar
10	Boom Barrier Controller

5. Connectivity & Interfaces

- **RFID Reader Interface:** Wiegand/Ethernet Type
- **Loop Detector Input:** Digital input for vehicle detection

- **IR Sensor Input:** Safety mechanism to prevent barrier collision
- **Cloud Communication:** Data logging over GSM Connection using HTTPS/MQTT protocol

6. Power Requirements

- **Input Voltage:** 12V / 24V DC
- **Power Consumption:** <5W (excluding motor control unit)

7. Environmental Conditions

Condition	Specification
Operating Temperature	-20°C to 70°C
Storage Temperature	-40°C to 85°C
Humidity	10% to 90% RH (non-condensing)

8. Cloud Integration

- **Secure Transmission:** Secure data transmission via HTTPS/MQTT protocol.
- **Web Dashboard:** Web-based dashboard for real-time monitoring of access logs.
- **Auto Reporting:** Automatic report generation and email notifications.

9. Compliance & Certifications

Standard	Description
CE	Conformité Européenne – European safety certification
FCC	Federal Communications Commission – Electromagnetic compatibility
RoHS	Restriction of Hazardous Substances – Environmental compliance

10. Ordering Information

Model Number	Description
BBC-ESP32-UHF	Boom Barrier Controller with UHF RFID
BBC-ESP32-IR	Boom Barrier Controller with IR Sensor

Product Image — STSS-TB6



stss-TB6 Boom Barrier Unit

Features

- **Powder Coated Steel:** Rainproof feature for durable outdoor installation.
- **Mechanical Reset:** Prevents injury through automatic mechanical reset mechanism.
- **Electromagnetic Control:** Electric control using electromagnetic drive to maintain safety.
- **Indoor & Outdoor:** Fully suitable for both indoor and outdoor environments.

Technical Specifications

Parameter	Specification
Model	STSS-TB6
Power Supply	220–240V ~ 50/60 Hz
Motor	24V DC Brushless Motor
Opening Time	<0.6 sec
Max. Power	140 W
Max. Torque	300 Nm
Material	Steel
Surface Treatment	Pre-hot dip galvanized, 20µm thick + polyester powder coated
Encoder	Incremental, integrated in the motor
Deceleration Type	Electronic + mechanical

Parameter	Specification
Beam Type	Rectangular and rounded
Max Boom Length	3 m
Operating Temperature	-20°C to +55°C
Protection Class	IP55 (Electronic control unit) – IP44
Weight	40 Kg
Use Frequency	Continuous use
Electronic Equipment	E614
Certifications	CE, FCC, RoHS

Options Available

Option	Description
PARKMONT-SFB25	Opening/Closing Time 2.5 sec – Parking Boom Barrier
Customisation	Barrier housing and colour customisation available
RFID	LF | HF | UHF RFID reader integration
Accessories	Access controllers & other accessories available on request

Compliance & Certifications

Standard	Description
CE	Conformité Européenne – European safety certification
FCC	Federal Communications Commission – Electromagnetic compatibility
RoHS	Restriction of Hazardous Substances – Environmental compliance