



# Back End

## DBHandler.py

Defines database models using orm\_sqlite

## Models

- Material
- Experiment
- Body
- Reading

## Classes

### DBHandler

Handles database connection and CRUD operations

#### Methods

- **init**(self, db\_path)
- add\_material(self, name, batch)
- add\_experiment(self, name, material, date, time, load\_loss\_limit, max\_load, max\_travel, max\_time, compress, z\_axis\_speed)
- add\_reading(self, experiment, load, z\_pos, time)
- get\_materials(self)
- get\_material\_by\_id(self, id)
- get\_bodies(self)
- get\_body\_by\_id(self, id)
- get\_bodies\_by\_material(self, material)
- get\_bodies\_by\_type(self, body\_type)
- get\_bodies\_by\_material\_and\_type(self, material, body\_type)
- get\_experiments(self)
- get\_experiment\_by\_id(self, id)

- `get_experiments_by_material(self, material)`
- `get_experiments_by_date(self, date)`
- `get_experiments_by_date_and_material(self, date, material)`
- `get_experiment_readings(self, experiment)`
- `delete_experiment_by_id(self, id)`
- `delete_material_by_id(self, id)`
- `populate(self)`

## DataHandler.py

Handles Raspberry Pi GPIO and data acquisition

### Classes

#### DataHandler

Abstract class for data acquisition

#### LoadCell

Handles load cell data acquisition

#### StepMotor

Handles step motor data acquisition