```
import numpy as np
from tensorflow.keras.models import Sequential
from tensorflow.keras.layers import Conv2D, MaxPooling2D, Flatten, Dense

# Generate synthetic data (replace with your real data)
num_samples = 1000
num_rows, num_cols, num_channels = 32, 32, 3  # Example dimensions for a 2D grid
X_train = np.random.rand(num_samples, num_rows, num_cols, num_channels)
y_train = np.random.rand(num_samples)  # Random air quality values (replace with your real target values)

# Define CNN model architecture
model = Sequential([
    Conv2D(32, kernel_size=(3, 3), activation='relu', input_shape=(num_rows, num_cols, num_channels)),
    MaxPooling2D(pool_size=(2, 2)),
    Conv2D(64, kernel_size=(3, 3), activation='relu'),
    MaxPooling2D(pool_size=(2, 2)),
    Flatten(),
    Dense(128, activation='relu'),
    Dense(1)  # Output layer for regression
])

# Compile model
model.compile(optimizer='adam', loss='mean_squared_error')

# Train model
model.fit(X_train, y_train, epochs=10, batch_size=32, validation_split=0.2)

X_test = np.random.rand(10, num_rows, num_cols, num_channels)  # Generating 10 samples for testing

# Predict AQI values
y_pred = model.predict(X_test)

# Print the predicted AQI values
print("Predicted AQI values:")
print(y_pred)
```

```
Epoch 1/10
25/25 [==============================] - 2s 47ms/step - loss: 0.1544 - val_loss: 0.0953
Epoch 2/10
25/25 [==============================] - 1s 38ms/step - loss: 0.0857 - val_loss: 0.0945
Epoch 3/10
25/25 [==============================] - 1s 58ms/step - loss: 0.0839 - val_loss: 0.0953
Epoch 4/10
25/25 [==============================] - 2s 64ms/step - loss: 0.0833 - val_loss: 0.0921
Epoch 5/10
25/25 [==============================] - 1s 37ms/step - loss: 0.0855 - val_loss: 0.0958
Epoch 6/10
25/25 [==============================] - 1s 38ms/step - loss: 0.0802 - val_loss: 0.0956
Epoch 7/10
25/25 [==============================] - 1s 41ms/step - loss: 0.0784 - val_loss: 0.0921
Epoch 8/10
25/25 [==============================] - 1s 41ms/step - loss: 0.0797 - val_loss: 0.0922
Epoch 9/10
25/25 [==============================] - 1s 41ms/step - loss: 0.0790 - val_loss: 0.0942
Epoch 10/10
25/25 [==============================] - 1s 41ms/step - loss: 0.0675 - val_loss: 0.0927
WARNING:tensorflow:5 out of the last 11 calls to <function Model.make_predict_function.<locals>.predict_function at 0x7ed551e4a170>
1/1 [==============================] - 0s 81ms/step
Predicted AQI values:
[[0.48768356]
 [0.47434455]
 [0.54802805]
 [0.49427274]
 [0.47728777]
 [0.52549255]
 [0.43257436]
 [0.4145079 ]
 [0.4550312 ]
 [0.44619402]]
```