**4.4.2 Database Design**

\* TABLE "Product" (

"id" INTEGER,

"name" TEXT NOT NULL,

"status" TEXT NOT NULL,

"ecodes" TEXT,

PRIMARY KEY("id"AUTOINCREMENT)

*Figure 4.4.2 Database Design*

This database design illustrates a system for managing halal food identification processes using a key table to store and organize data. The Product table is the central component of the system. It holds essential details about food products, enabling efficient management of the halal identification process. The Product table contains several important fields. The id field is a unique identifier for each product, which serves as the primary key. The name field stores the name of the product being scanned and identified. The status field records the halal status of the product, indicating whether it is "halal," "non-halal," or "unknown."

The ecodes field is a text field that stores additional information related to the product, such as E-codes or ingredients that may affect its halal status. This table allows the system to store and retrieve key information about food products during the scanning process, ensuring accurate identification and classification. When a product is scanned using the camera, its name is compared to the entries in the Product table, and the corresponding status and ecodes are displayed, helping users determine whether the item is permissible according to halal guidelines.

**4.4.3 Database Fields**

A field is a data structure that stores a single piece of data. In our HalalZam system, fields are organized into records, where each record contains all the information relevant to a specific food product. To ensure consistency across records, each column in the table is assigned an appropriate data type. For example, in the Product table, the id field serves as the primary key and uses the AutoIncrement data type to automatically generate a unique number for each row, ensuring that each product has a distinct identifier. The name field stores the product's name as a text data type, while the status field, also a text type, indicates whether the product is "halal," "non-halal," or "unknown." The ecodes field, another text field, holds additional information such as ingredient E-codes that might influence the product’s halal status. The primary key (PK) is a unique identifier that ensures each product record is distinct within the table, maintaining data integrity and facilitating accurate searches and comparisons during the halal identification process.

TABLE Product

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Attribute Name** | **Data Type** | **Max Length** | **Key Type** | **Null** |
| id | INT | 11 | PRIMARY KEY | No |
| name | VARCHAR | 100 |  | No |
| status | VARCHAR | 55 |  | No |
| ecodes | VARCHAR | 55 |  | No |