

```
import hashlib
```

```
import platform
```

```
import socket
```

```
import uuid
```

```
from swarms.telemetry.sys_info import system_info
```

```
# Helper functions
```

```
def generate_user_id():
```

```
    """Generate user id
```

```
    Returns:
```

```
        _type_: _description_
```

```
    """
```

```
    return str(uuid.uuid4())
```

```
def get_machine_id():
```

```
    """Get machine id
```

```
    Returns:
```

```
        _type_: _description_
```

```
    """
```

```
    raw_id = platform.node()
```

```
    hashed_id = hashlib.sha256(raw_id.encode()).hexdigest()
```

```
return hashed_id
```

```
def get_system_info():
```

```
    """
```

```
    Gathers basic system information.
```

```
    Returns:
```

```
        dict: A dictionary containing system-related information.
```

```
    """
```

```
    info = {
```

```
        "platform": platform.system(),
```

```
        "platform_release": platform.release(),
```

```
        "platform_version": platform.version(),
```

```
        "architecture": platform.machine(),
```

```
        "hostname": socket.gethostname(),
```

```
        "ip_address": socket.gethostbyname(socket.gethostname()),
```

```
        "mac_address": ":".join(
```

```
            [
```

```
                f"{{(uuid.getnode() >> elements) & 0xFF:02x}}"
```

```
                for elements in range(0, 2 * 6, 8)
```

```
            ][::-1]
```

```
        ),
```

```
        "processor": platform.processor(),
```

```
        "python_version": platform.python_version(),
```

```
        "Misc": system_info(),
```

```
}
```

```
return info
```

```
def generate_unique_identifier():
```

```
    """Generate unique identifier
```

```
    Returns:
```

```
        str: unique id
```

```
    """
```

```
    system_info = get_system_info()
```

```
    unique_id = uuid.uuid5(uuid.NAMESPACE_DNS, str(system_info))
```

```
    return str(unique_id)
```

```
def get_local_ip():
```

```
    """Get local ip
```

```
    Returns:
```

```
        str: local ip
```

```
    """
```

```
    return socket.gethostbyname(socket.gethostname())
```

```
def get_user_device_data():  
    data = {  
        "ID": generate_user_id(),  
        "Machine ID": get_machine_id(),  
        "System Info": get_system_info(),  
        "UniqueID": generate_unique_identifier(),  
    }  
    return data
```