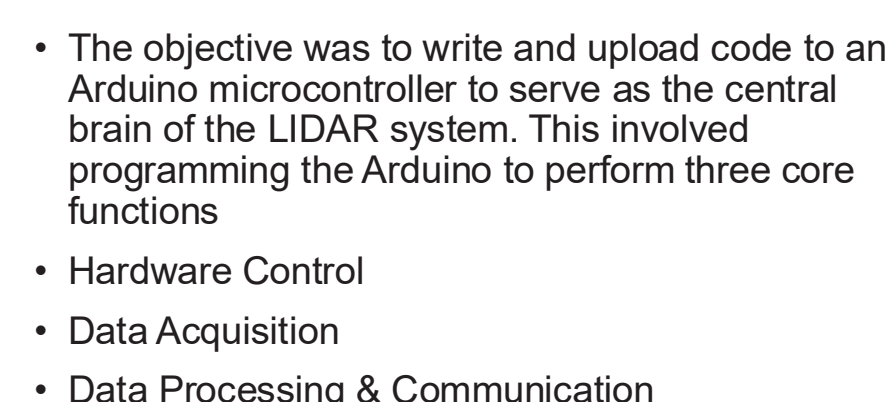
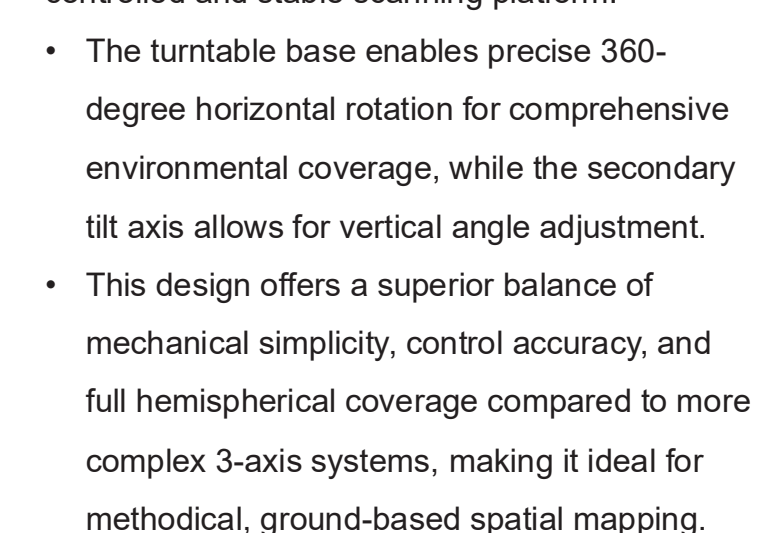
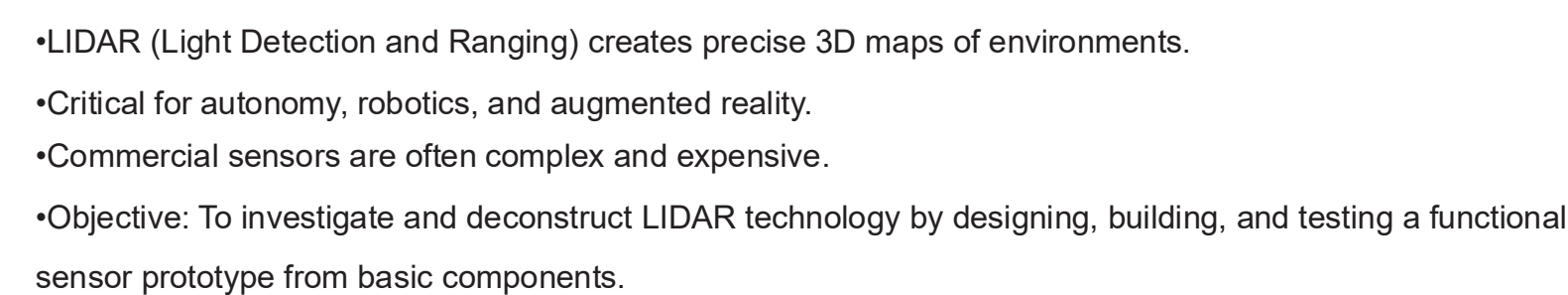




*Applied Physics, Computer Engineering Major
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This research explores the design and implementation of a low-cost LIDAR sensor prototype within the Morehouse College engineering laboratories. The project integrated laser ranging principles with microcontroller systems to enable accurate spatial mapping and object detection, demonstrating a scalable approach for autonomous navigation applications.



- Serial Communication
- Data Parsing & Processing
- Real-Time 3D Visualization

```

lude <SoftwareSerial.h>
lude "TFMini.h"

etup software serial port
wSerial mySerial(10, 11); // Use RX (TFMINI_TX), TX (TFMINI_RX)
ni tfmini;

setupt() {
Step 1: Initialize hardware serial port (serial debug port)
rial.begin(115200);
wait for serial port to connect. Needed for native USB port only
(!Serial);

rial.println("Initializing...");

Step 2: Initialize the data rate for the SoftwareSerial port
Serial.begin(TFMINI_BAUDRATE);

Step 3: Initialize the TF Mini sensor

ch uses 4520 bytes (14%) of program storage space. Maximum is 32256 bytes.
al variables use 477 bytes (23%) of dynamic memory, leaving 1571 bytes for local

```

Future Applications & Development:
Robotics Navigation: Enable autonomous obstacle avoidance and path planning
Next Steps: Miniaturize components, enhance scanning speed