

Bangladesh Industrial Technical Assistance Center (BITAC)
116 (Kha), Tejgaon I/A, Dhaka-1208

ক্ষুদ্র-উন্নয়ন-প্রকল্প

Proposed year: 2025- 2026

Title: (Innovation)	Establishing Functional Readiness of Mobile Robots for Localization, Mapping, and Autonomous Navigation
Project Location:	এটিআইসি ভবন , বিটাক, ঢাকা।

Current and Desired Situations:

Situation Before Improvement	KPI*	Situation Expected After Improvement
<ul style="list-style-type: none"> • Robots not fully functional for reliable operation • Sensors not calibrated (odometry, IMU, LiDAR/camera) • Mapping inconsistent due to calibration gaps • Localization inaccurate and unreliable • <input type="checkbox"/> Autonomous navigation not achievable yet 	<ul style="list-style-type: none"> • Robot moves reliably (functional readiness) • IMU bias and noise within limits • LiDAR/camera alignment correct (TF consistent) • Maps reproducible and accurate • Reduce Localization error • Autonomous navigation without collisions • ROS nodes stable and communication reliable 	<ul style="list-style-type: none"> • Robots fully functional and reliably controllable • Sensors (odometry, IMU, LiDAR/camera) calibrated • Consistent and accurate environment mapping • Reliable localization within mapped areas • Autonomous navigation achievable in test environment • ROS nodes stable; communication robust • Baseline system ready for further research and innovation

Implementation Schedule (Weeks):

Weeks/Months	Person in charge	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Robot Functional Bring-Up	মো: আতিকুর রহমান সহকারী প্রকৌশলী	█																				
Sensor Calibration		█	█																			
Mapping Implementation			█	█																		
Localization Setup				█	█																	
Autonomous Navigation Tests						█	█	█	█	█	█	█	█	█	█							
System Validation & Documentation																█	█	█	█	█	█	█

Signature:

Atiqur

৬/৭/২০২৫

Name & Designation: মো: আতিকুর রহমান, সহকারী প্রকৌশলী, বিটাক, ঢাকা।

প্রস্তাব বাস্তবায়নকারী

নাম	পদবি
জনাব মো: আতিকুর রহমান	সহকারী প্রকৌশলী (এটিআইসি ভবন)
সকল সদস্য	এটিআইসি ভবন

*Key Performance Indicator

Balim
২৬/০৬/২৫